Contents 2000

January 1, 2000

1 **The Missing Piece: Embracing Shared Decision Making to Reform Health Care**
James N. Weinstein

5 **The Fine Connective Tissue Architecture of the Human Ligamentum Nuchae**
Gillian M. Johnson, Ming Zhang, and D. Gareth Jones

10 **Plaster of Paris as an Osteoconductive Material for Interbody Vertebral Fusion in Mature Sheep**
Alexander G. Hadjipavlou, James W. Simmons, Jinping Yang, Clarence L. Nicodemus, Oliver Esch, and David J. Simmons

16 **Point of View**
Joon B. Park

17 **Sensitivity of Anulus Fibrosus Cells to Interleukin 1β: Comparison With Articular Chondrocytes**
François Rannou, Marie Thérèse Corvol, Christophe Hudry, Phillipe Anract, Marie F. Dumontier, Lydia Tsagris, Michel Revel, and Serge Poiraudeau

24 **Effects of EPC-K1 on Lipid Peroxidation in Experimental Spinal Cord Injury**
Toru Fujimoto, Takafumi Nakamura, Takashi Ikeda, Yuji Taoka, and Katsumasa Takagi

30 **Stopping Nicotine Exposure Before Surgery: The Effect on Spinal Fusion in a Rabbit Model**
K. J. Wing, C. G. Fisher, J. X. O'Connell, and P. C. Wing

35 **Influence of PLIF Cage Size on Lumbar Spine Stability**
James C. H. Goh, Hee-Kit Wong, Ashvin Thambyah, and Chun-Sing Yu

40 **Point of View**
Noshir A. Langrana

41 **Increased Fusion Rates With Cervical Plating for Two-Level Anterior Cervical Discectomy and Fusion**
Jeffrey C. Wang, Paul W. McDonough, Kevin K. Endow, and Rick B. Delamarter

45 **Point of View**
Sanford E. Emery

46 **Canal Geometry Changes Associated With Axial Compressive Cervical Spine Fracture**
Jarrod W. Carter, Sohail K. Mirza, Allan F. Tencer, and Randal P. Ching

55 **The Effect of Polytrauma in Persons With Traumatic Spine Injury: A Prospective Database of Spine Fractures**
Jackie S. Hebert and Robert S. Burnham

60 **Point of View**
Paul A. Anderson

61 **Scoliosis Correction Maintenance in Skeletally Immature Patients With Idiopathic Scoliosis: Is Anterior Fusion Really Necessary?**
Douglas C. Burton, Marc A. Asher, and Sue Min Lai

69 **Modulation of Spinal Deformities in Patients With Neurofibromatosis Type 1**
Abubakar A. Durrani, Alvin H. Crawford, Sambhu N. Chouhdry, Asif Saifuddin, and T. R. Morley

75 **Point of View**
Behrooz A. Akbarnia

76 **Comparison of Push-Prone and Lateral-Bending Radiographs for Predicting Postoperative Coronal Alignment in Thoracolumbar and Lumbar Scoliotic Curves**
Ravishankar Vedantam, Lawrence G. Lenke, Keith H. Bridwell, and Douglas L. Linville

82 **A Prospective Evaluation of Pulmonary Function in Patients With Adolescent Idiopathic Scoliosis Relative to the Surgical Approach Used for Spinal Arthrodesis**
Ravishankar Vedantam, Lawrence G. Lenke, Keith H. Bridwell, Jonathan Haas, and Douglas A. Linville

90 **Point of View**
Shanti S. Upadhyay

91 **Consistency of History Taking and Physical Examination in Patients With Suspected Lumbar Nerve Root Involvement**
Patrick C. A. J. Vroomen, Marc C. T. F. M. de Krom, and J. André Knottnerus

97 **Point of View**
Jeremy Fairbank

98 **Spinal Position Sense Is Independent of the Magnitude of Movement**
Annette Swinkels and Patricia Dolan

105 **Point of View**
Joel S. Saal

Contents 2000

January 1, 2000

1 **The Missing Piece: Embracing Shared Decision Making to Reform Health Care**
James N. Weinstein

5 **The Fine Connective Tissue Architecture of the Human Ligamentum Nuchae**
Gillian M. Johnson, Ming Zhang, and D. Gareth Jones

10 **Plaster of Paris as an Osteoconductive Material for Interbody Vertebral Fusion in Mature Sheep**
Alexander G. Hadjipavlou, James W. Simmons, Jinping Yang, Clarence L. Nicodemus, Oliver Esch, and David J. Simmons

16 **Point of View**
Joon B. Park

17 **Sensitivity of Anulus Fibrosus Cells to Interleukin 1β: Comparison With Articular Chondrocytes**
François Rannou, Marie Thérèse Corvol, Christophe Hudry, Phillipe Anract, Marie F. Dumontier, Lydia Tsagris, Michel Revel, and Serge Poiraudeau

24 **Effects of EPC-K1 on Lipid Peroxidation in Experimental Spinal Cord Injury**
Toru Fujimoto, Takafumi Nakamura, Takashi Ikeda, Yuji Taoka, and Katsumasa Takagi

30 **Stopping Nicotine Exposure Before Surgery: The Effect on Spinal Fusion in a Rabbit Model**
K. J. Wing, C. G. Fisher, J. X. O'Connell, and P. C. Wing

35 **Influence of PLIF Cage Size on Lumbar Spine Stability**
James C. H. Goh, Hee-Kit Wong, Ashvin Thambyah, and Chun-Sing Yu

40 **Point of View**
Noshir A. Langrana

41 **Increased Fusion Rates With Cervical Plating for Two-Level Anterior Cervical Discectomy and Fusion**
Jeffrey C. Wang, Paul W. McDonough, Kevin K. Endow, and Rick B. Delamarter

45 **Point of View**
Sanford E. Emery

46 **Canal Geometry Changes Associated With Axial Compressive Cervical Spine Fracture**
Jarrod W. Carter, Sohail K. Mirza, Allan F. Tencer, and Randal P. Ching

55 **The Effect of Polytrauma in Persons With Traumatic Spine Injury: A Prospective Database of Spine Fractures**
Jackie S. Hebert and Robert S. Burnham

60 **Point of View**
Paul A. Anderson

61 **Scoliosis Correction Maintenance in Skeletally Immature Patients With Idiopathic Scoliosis: Is Anterior Fusion Really Necessary?**
Douglas C. Burton, Marc A. Asher, and Sue Min Lai

69 **Modulation of Spinal Deformities in Patients With Neurofibromatosis Type 1**
Abubakar A. Durrani, Alvin H. Crawford, Sambhu N. Chouhdry, Asif Saifuddin, and T. R. Morley

75 **Point of View**
Behrooz A. Akbarnia

76 **Comparison of Push-Prone and Lateral-Bending Radiographs for Predicting Postoperative Coronal Alignment in Thoracolumbar and Lumbar Scoliotic Curves**
Ravishankar Vedantam, Lawrence G. Lenke, Keith H. Bridwell, and Douglas L. Linville

82 **A Prospective Evaluation of Pulmonary Function in Patients With Adolescent Idiopathic Scoliosis Relative to the Surgical Approach Used for Spinal Arthrodesis**
Ravishankar Vedantam, Lawrence G. Lenke, Keith H. Bridwell, Jonathan Haas, and Douglas A. Linville

90 **Point of View**
Shanti S. Upadhyay

91 **Consistency of History Taking and Physical Examination in Patients With Suspected Lumbar Nerve Root Involvement**
Patrick C. A. J. Vroomen, Marc C. T. F. M. de Krom, and J. André Knottnerus

97 **Point of View**
Jeremy Fairbank

98 **Spinal Position Sense Is Independent of the Magnitude of Movement**
Annette Swinkels and Patricia Dolan

105 **Point of View**
Joel S. Saal

106 The Use of a Classification Approach to Identify Subgroups of Patients With Acute Low Back Pain: Interrater Reliability and Short-Term Treatment Outcomes
Julie M. Fritz and Steven George

115 Beyond the Good Prognosis: Examination of an Inception Cohort of Patients With Chronic Low Back Pain
Timothy S. Carey, Joanne Mills Garrett, and Anne M. Jackman

123 Management of Symptomatic Lumbar Pseudarthrosis With Anteroposterior Fusion: A Functional and Radiographic Outcome Study
Todd J. Albert, Manuel Pinto, and Francis Denis

130 Point of View
Geoffrey Coldham and Edward N. Hanley, Jr

131 Giovanni Alfonso Borelli: "Father of Spinal Biomechanics"
Matthew T. Provencher and William A. Abdu

137 Letters

139 Meetings of Interest for Spine Physicians and Surgeons

142 Information for Authors

January 15, 2000

145 View on *Spine* for the Next Millennium
Alf Nachemson, Senior Editor

147 Prognostic Factors for Time Claimants Receive Workers' Compensation Benefits in a Cohort of Patients With Low Back Pain
Greg McIntosh, John Frank, Sheilah Hogg-Johnson, Hamilton Hall, and Claire Bombardier

158 Effect of Augmentation on the Mechanics of Vertebral Wedge Fractures
David R. Wilson, Elizabeth R. Myers, John M. Mathis, Robert M. Scribner, Jonathan A. Conta, Mark A. Reiley, Karen D. Talmadge, and Wilson C. Hayes

166 Changes With Age in Proteoglycan Synthesis in Cells Cultured *In Vitro* From the Inner and Outer Rabbit Anulus Fibrosus: Responses to Interleukin-1 and Interleukin-1 Receptor Antagonist Protein
Shingo Maeda and Shoichi Kokubun

170 Load-Sharing Characteristics of Stabilized Lumbar Spine Segments
Peter A. Cripton, Cautham M. Jain, Ralf H. Wittenberg, and Lutz-P. Nolte

180 Transverse-Contour Modeling of Trunk Muscle–Distributed Forces and Spinal Loads During Lifting and Twisting
Joseph R. Davis and Gary A. Mirka

190 Clinicoradiologic Study of Cervical Laminoplasty With Posterolateral Fusion or Bone Graft
Yasuo Morio, Kichizo Yamamoto, Ryota Teshima, Hideki Nagashima, and Hirosi Hagino

197 Nonoperative Treatment for Lumbar Spinal Stenosis: Clinical and Outcome Results and a 3-Year Survivorship Analysis
Alexander C. Simotas, Fredrick J. Dorey, Kenneth K. Hansraj, and Frank Cammisa, Jr.

203 Point of View
Jeffrey Katz

205 A Three-Dimensional Radiographic Comparison of Cotrel–Dubousset and Colorado Instrumentations for the Correction of Idiopathic Scoliosis
Sébastien Delorme, Hubert Labelle, Carl-Éric Aubin, Jacques A. de Guise, Charles-H. Rivard, Benoît Poitras, and Jean Dansereau

211 The Relationship Between Tight Hamstrings and Lumbar Hypolordosis in Children With Cerebral Palsy
James J. M cCarthy and Randal R. Betz

214 A Radiostereometric Analysis of the Movements of the Sacroiliac Joints in the Reciprocal Straddle Position
Bengt Sturesson, Alf Uden, and Andry Vleeming

225 A Cross-Sectional Study Correlating Lumbar Spine Degeneration With Disability and Pain
Cynthia K. Peterson, Jennifer E. Bolton, and Angela R. Wood

226 Body Weight and Low Back Pain: A Systematic Literature Review of 56 Journal Articles Reporting on 65 Epidemiologic Studies
Charlotte Leboeuf-Yde

238 Results of a Multimodal Treatment Program for Patients With Chronic Symptoms After a Whiplash Injury of the Neck
Alexander A. Vendrig, Pieter F. van Akkerveeken, and Kevin R. McWhorter

245 Repositioning Error in Low Back Pain: Comparing Trunk Repositioning Error in Subjects With Chronic Low Back Pain and Control Subjects
Karen Newcomer, Edward R. Laskowski, Bing Yu, Dirk R. Larson, and Kai-Nan An

251 Coordination of Primary Health Care for Back Pain: A Randomized Controlled Trial
Michel Rossignol, Lucien Abenhaim, Pierre Séguin, Alain Neveu, Jean-Paul Collet, Thierry Ducruet, and Stanley Shapiro

258 Point of View
Daniel Cherkin

260 Endoscopic Foraminotomy Using MED System in Cadaveric Specimens
Sung Woo Roh, Daniel H. Kim, Alberto C. Cardoso, and Richard G. Fessler

265 Posterior Spinal Instrumentation and Fusion of a Neuromuscular Scoliosis in a Patient With Autosomal Dominant Osteopetrosis
L. Erik Westerlund, John S. Blanco, and Abhinav Chhabra

268 Giant *Cauda Equina* Schwannoma: A Case Report
Hitoshi Kagaya, Eiji Abe, Kozo Sato, Yoichi Shimada, and Atsushi Kimura

273 Letters to the Editor

277 Meetings of Interest for Spine Physicians and Surgeons

280 Information for Authors

February 1, 2000

283 Introduction

284 Editorial Comments: Thoughts and Ideas About the Future of *Spine*

285 Editorial Comments: Introducting New Technology: A Stepwise Algorithm

286 The Anatomic Relation Among the Nerve Roots, Intervertebral Foramina, and Intervertebral Discs of the Cervical Spine
Nobuhiro Tanaka, Yoshinori Fujimoto, Howard S. An, Yoshikazu Ikuta, and Mineo Yasuda

292 Internal Architecture of the Sacrum in the Elderly: An Anatomic and Radiographic Study
Nabil Ebraheim, Fady F. Sabry, Yasser Nadim, Rongming Xu, and Richard A. Yeasting

298 Experimental Study on the Dynamics of Lumbosacral Nerve Root Circulation
Shigeru Kobayashi, Hidezo Yoshizawa, and Sadaaki Nakai

306 Biomechanical Studies of a Dynamized Anterior Thoracolumbar Implant
Patrick W. Hitchon, Vijay K. Goel, Thomas Rogge, Nicole M. Grosland, Koichi Sairyo, and James Torner

310 Viscoelastic Finite-Element Analysis of a Lumbar Motion Segment in Combined Compression and Sagittal Flexion: Effect of Loading Rate
Jaw-Lin Wang, Mohamad Parnianpour, Aboulfazl Shirazi-Adl, and Ali E. Engin

319 Spinous Process Strength
Duncan E. T. Shepherd, Johanna C. Leahy, Katharine J. Mathias, Steven J. Wilkinson, and David W. L. Hukins

324 Criterion Validity of the Cervical Range of Motion (CROM) Goniometer for Cervical Flexion and Extension
Michel Tousignant, Laurent De Bellefeuille, Shayne O'Donoughue, and Stephen Grahovac

331 Central Cord Injury Complicating Acute Cervical Disc Herniation in Trauma
Liyang Dai and Lianshun Jia

336 Point of View

337 C1—C2 Intra-Articular Screw Fixation for Atlantoaxial Posterior Stabilization
Yasuaki Tokuhashi, Hiromi Matsuzaki, Yoshio Shirasaki, and Tetsuya Tateishi

342 Progression of Lumbosacral Isthmic Spondylolisthesis in Adults
Yizhar Floman

348 Medical Realities of Cauda Equina Syndrome Secondary to Lumbar Disc Herniation
Scott Shapiro

352 Point of View

353 Variation in Bone Mineral Density of the Sacrum in Young Adults and Its Significance for Sacral Fixation
Yinggang Zheng, William W. Lu, Qingan Zhu, Ling Qin, Shizhen Zhong, and John C. Y. Leong

358 The Interspinous Ligament of the Lumbar Spine: Magnetic Resonance Images and Their Clinical Significance
Atsushi Fujiwara, Kazuya Tamai, Howard S. An, Ken Shimizu, Hiroyuki Yoshida, and Koichi Saotome

364 A Radiostereometric Analysis of Movements of the Sacroiliac Joints During the Standing Hip Flexion Test
Bengt Sturesson, Alf Uden, and Andry Vleeming

369 Physical and Psychosocial Factors Related to Low Back Pain During a 24-Year Period: A Nested Case–Control Analysis
Carina Bildt Thorbjörnsson, Lars Alfredsson, Kerstin Fredriksson, Hans Michélsen, Laura Punnett, Eva Vingård, Margareta Torgén, and Åsa Kilbom

375 Point of View

376 The Use of rhBMP-2 in Interbody Fusion Cages: Definitive Evidence of Osteoinduction in Humans: A Preliminary Report
Scott D. Boden, Thomas A. Zdeblick, Harvinder S. Sandhu, and Stephen E. Heim

381 Point of View

382 Management of Chronic Discogenic Low Back Pain With a Thermal Intradiscal Catheter: A Preliminary Report
Joel S. Saal and Jeffrey A. Saal

389 Lumbar Foraminal Stenosis
Louis G. Jenis and Howard S. An

395 Jefferson Fracture Resulting in Collet-Sicard Syndrome
CPT Brendon Connolly, LCDR Clayton Turner, CPT John DeVine, and CPT Tad Gerlinger

399 Meetings of Interest for Spine Physicians and Surgeons

402 Information for Authors

February 15, 2000

405 Historical Perspectives 2000

406 A Novel Spinal Implant Infection Model in Rabbits
Kornelis A. Poelstra, Nazir A. Barekzi, David W. Grainger, Anthony G. Gristina, and Thomas C. Schuler

411 Electrical Stimulation of the Rat Lumbar Spine Induces Reflex Action Potentials in the Nerves to the Lower Abdomen
Yuzuru Takahashi, Jiro Hirayama, Yoshio Nakajima, Seiji Ohtori, and Kazuhisa Takahashi

418 An Experimental Study of the Effects of Nerve Root Retraction on the Posterior Ramus
Ryuichi Nagayama, Hiroaki Nakamura, Yoshiki Yamano, Takatsugu Yamamoto, Yasuyuki Minato, Masahiko Seki, and Sadahiko Konishi

425 Posterior Lumbar Interbody Fusion Using Posterolateral Placement of a Single Cylindrical Threaded Cage
Jie Zhao, Yong Hai, Nathaniel R. Ordway, Choon Keun Park, and Hansen A. Yuan

431 Effects of Backward Bending on Lumbar Intervertebral Discs
Michael A. Adams, Stephen May, Brian J.C. Freeman, Helen P. Morrison, and Patricia Dolan

438 Point of View

439 The Clinical Presentation of Uppermost Cervical Disc Protrusion
Tzu-Yung Chen

443 Noninvasive Three-Dimensional Analysis of Cervical Spine Motion in Normal Subjects in Relation to Age and Sex: An Experimental Examination
William H.M. Castro, Annika Sautmann, Markus Schilgen, and Michael Sautmann

450 Clinical and Radiographic Evaluation of Disc Excision for Lumbar Disc Herniation With and Without Posterolateral Fusion
Toshichika Takeshima, Kanji Kambara, Shigeki Miyata, Yurito Ueda, and Susumu Tamai

457 Quantifying Changes in Standing Body Segment Alignment Following Spinal Instrumentation and Fusion in Idiopathic Scoliosis Using an Optoelectronic Measurement System
Peter D. Masso and George E. Gorton, III

463 Reoperation After Primary Posterior Instrumentation and Fusion for Idiopathic Scoliosis: Toward Defining Late Operative Site Plan of Unknown Cause
Scott Cook, Marc Asher, Sue-Min Lai, and Joel Shobe

469 Vertebral Decancellation for Severe Scoliosis
Makoto Tokunaga, Shohei Minami, Hiroshi Kitahara, Keijiro Isobe, Yoshinori Nakata, and Hideshige Moriya

475 Effect of the Transligamentous Extension of Lumbar Disc Herniations on Their Regression and the Clinical Outcome of Sciatica
Sang-Ho Ahn, Myun-Whan Ahn, and Woo-Mok Byun

481 Incidence of Intravascular Uptake in Lumbar Spinal Injection Procedures
William J. Sullivan, Stuart E. Willick, Waree Chira-Adisai, Joseph Zuhosky, Mark D. Tyburski, Paul Dreyfuss, Heidi Prather, and Joel M. Press

487 Low Back Pain in Relation to Lumbar Disc Degeneration
Katariina Luoma, Hilkka Riihimäki, Ritva Luukkonen, Raili Raininko, Eira Viikari-Juntura, and Antti Lamminen

493 To What Extent Do Current and Past Physical and Psychosocial Occupational Factors Explain Care-Seeking for Low Back Pain in a Working Population? Results From the Musculoskeletal Intervention Center-Norrtälje Study
Eva Vingård, Lars Alfredsson, Mats Hagberg, Åsa Kilbom, Töres Theorell, Måns Waldenström, Ewa Wigaeus Hjelm, Christina Wiktorin, Christer Hogstedt, and the Music-Norrtälje Study Group

501 Clinical Experience With Functional Electrical Stimulation-Assisted Gait With Parastep in Spinal Cord–Injured Patients
Régine Brissot, Philippe Gallien, Marie-Pierre Le Bot, Anne Beaubras, Dominique Laisné, Jocelyne Beillot, and Josette Dassonville

509 Transperitoneal Laparoscopic Exposure for Lumbar Interbody Fusion
I.H. Lieberman, P.C. Willsher, D.E.M. Litwin, P.T. Salo, and B.G. Kraetschmer

515 Point of View

516 Use of Epidural Steroids After Discectomy May Predispose to Infection
Troy D. Lowell, Thomas J. Errico, and Mark S. Eskenazi

520 Primary Solitary *Echinococcosis* in Cervical Spine: Postsurgical Successful Outcome After Long Term Albendazole Treatment
Rosario García-Vicuña, Inmaculada Carvajal, Ana Ortiz-García, Juan C. López-Robledillo, Armando Laffón, and Pedro Sabando

524 Atlantoaxial Rotatory Subluxation in Patients With Marfan Syndrome: A Report of Three Cases
Andrea Herzka, Paul D. Sponseller, and Reed E. Pyeritz

527 Aneurysmal Bone Cyst of the First Cervical Vertebrae in a Child Treated With Percutaneous Intralesional Injection of Calcitonin and Methylprednisolone: A Case Report
Merrill L. Gladden, Jr., Bruce L. Gillingham, William Hennrikus, and Luke M. Vaughan

531 Point of View

532 Meetings of Interest for Spine Physicians and Surgeons

535 Information for Authors

February 15, 2000 Supplement

1 Summary and Recommendations

3 Foreword

5 Introduction: Activity and Back Pain

9 Historical Overview of Recommendations Concerning the Clinical Management of Back Pain

Methodology of the Paris Task Force

12 Mobility and Activities of Daily Living

15 Exercise

20 Occupational Activity

24 Acknowledgments

24 References

26 Appendix A

33 Appendix B: Members of the International Paris Task Force on Back Pain

March 1, 2000

537 Injury to Dorsal Root Ganglia Alters Innervation of Spinal Cord Dorsal Horn Lamina Involved in Nociception
Shin-Ichiro Nakamura and Robert R. Myers

543 Effects of Specimen Length on the Monosegmental Motion Behavior of the Lumbar Spine
Annette Kettler, Hans-Joachim Wilke, Christian Haid, and Lutz Claes

551 Surgical Outcome of Cervical Expansive Laminoplasty in Patients With Diabetes Mellitus
Yoshiharu Kawaguchi, Hisao Matsui, Hirokazu Ishihara, Ryuichi Gejo, and Taketoshi Yasuda

556 Surgical and Nonsurgical Management of Lumbar Spinal Stenosis: Four-Year Outcomes From the Maine Lumbar Spine Study
Steven J. Atlas, Robert B. Keller, Deborah Robson, Richard A. Deyo, and Daniel E. Singer

563 A Synthetic Porous Ceramic as a Bone Graft Substitute in the Surgical Management of Scoliosis: A Prospective, Randomized Study
Joël Delécrin, Shinobu Takahashi, François Gouin, and Norbert Passuti

570 Development of Trunk Asymmetry in a Cohort of Children Ages 11 to 22 Years
Maunu J. Nissinen, Markku M. Heliövaara, Jorma T. Seitsamo, Mauno H. Könönen, Kirsti A. Hurmerinta, and Mikko S. Poussa

575 Lumbopelvic Lordosis and Pelvic Balance on Repeated Standing Lateral Radiographs of Adult Volunteers and Untreated Patients With Constant Low Back Pain
Roger P. Jackson, Tokumi Kanemura, Noriaki Kawakami, and Chris Hales

587 Impairment Magnification During Dynamic Trunk Motions
William S. Marras, Karen E. K. Lewis, Sue A. Ferguson, and Mohamad Parnianpour

596 Predictors of Blood Transfusions in Spinal Instrumentation and Fusion Surgery
Gregory A. Nuttall, Terese T. Horlocker, Paula J. Santrach, William C. Oliver, Jr, Mark B. Dekutoski, and Sandra Bryant

602 Use of the Surgical Blood Order Equation in Spinal Instrumentation and Fusion Surgery
Gregory A. Nuttall, Terese T. Horlocker, Paula J. Santrach, William C. Oliver, Jr, Mark B. Dekutoski, and Sandra Bryant

606 Comparative Results Between Conventional and Computer-Assisted Pedicle Screw Installation in the Thoracic, Lumbar, and Sacral Spine
Louis-Philippe Amiot, Karsten Lang, Michael Putzier, Hartmut Zippel, and Hubert Labelle

615 Clinical Evaluation and Computed Tomography Scan Analysis of Screw Tracts After Percutaneous Insertion of Pedicle Screws in the Lumbar Spine
Lothar Wiesner, Ralph Kothe, Klaus-Peter Schulitz, and Wolfgang Rüther

622 Progression of Idiopathic Thoracolumbar Scoliosis After Breast Reconstruction With a Latissimus Dorsi Flap: A Case Report
David H. Kim and Paul A. Glazer

626 *Mycobacterium xenopi* Infection of the Spine: A Case Report and Literature Review
Tony Danesh-Clough, Jean-Claude Theis, and Antje van der Linden

629 Foraminal Epidural Extra Osseous Cavernous Hemangioma of the Cervical Spine: A Case Report
Robert Carlier, Sandrine Engerand, Sylvie Lamer, Christian Vallee, Bernard Bussel, and Marc Polivka

632 Cervical Vertigo After Hair Shampoo Treatment at a Hairdressing Salon: A Case Report

635 Synovial Chondromatosis in a Facet Joint of a Cervical Vertebra
635

641 A Solitary Bone Cyst in the Spinous Process of the Cervical Spine: A Case Report
641

643 Cervical Spine Internal Fixation Using Screw and Screw-Plate Constructs
Geoffrey M. McCullen and Steven R. Garfin

653 Letters to the Editor

655 Meetings of Interest for Spine Physicians and Surgeons

658 Information for Authors

March 15, 2000

661 Quality and Its Dimensions

662 Effect of Loading Rate and Hydration on the Mechanical Properties of the Disc
Amos Race, Neil D. Broom, and Peter Robertson

670 Outcome of Patients Treated for Cervical Myelopathy: A Prospective, Multicenter Study With Independent Clinical Review
Prakash Sampath, Mohammed Bendebba, John D. Davis, and Thomas B. Ducker

677 Increased Signal Intensity of the Spinal Cord on Magnetic Resonance Images in Cervical Compressive Myelopathy: Does It Predict the Outcome of Conservative Treatment?
Morio Matsumoto, Yoshiaki Toyama, Masayuki Ishikawa, Kazuhiro Chiba, Nobumasa Suzuki, and Yoshikazu Fujimura

683 Symptoms, Signs, and Functional Disability in Adult Spondylolisthesis
Hans Möller, Agneta Sundin, and Rune Hedlund

690 Point of View

691 Safety of Sublaminar Wires With Isola Instrumentation for the Treatment of Idiopathic Scoliosis
Federico P. Girardi, Oheneba Boachie-Adjei, and Bernard A. Rawlins

696 Anterior Fusion for Idiopathic Scoliosis
Mohammad E. Majd, Frank P. Castro, Jr., and Richard T. Holt

703 Electrical Thresholds for Biomechanical Response in the Ankle to Direct Stimulation of Spinal Roots L4, L5, and S1: Implications for Intraoperative Pedicle Screw Testing
Roman Bošnjakc and Vinko V. Dolenc

709 The Radiologic Anatomy of the Lumbar and Lumbosacral Pedicles
Peter A. Robertson and Neal R. Stewart

716 Spinal Cord Injury in Mississippi: Findings and Evaluation, 1992–1994
Joseph Surkin, Brenda J. Colley Gilbert, H. Louis Harkey III, Joseph Sniezek, and Mary Currier

722 Patient Satisfaction After Circumferential Lumbar Fusion
Paul J. Slosar, James B. Reynolds, Jerome Schofferman, Noel Goldthwaite, Arthur H. White, and Diane Keaney

727 Review of 36 Cases of Spinal Cord Meningioma
Ferruh Gezen, Serdar Kahraman, Zafer Çanakci, and Altay Bedük

732 Radiographic Analysis of Lumbar Motion in Relation to Lumbosacral Stability: Investigation of Moderate and Maximum Motion
Kazuyoshi Miyasaka, Kazuo Ohmori, Kazuhiro Suzuki, and Hidenori Inoue

738 Bridging the Gap Between Science and Practice in Managing Low Back Pain: A Comprehensive Spine Care System in a Health Maintenance Organization Setting
Ben J. Klein, Richard T. Radecki, Michael P. Forisa, Edward I. Feil, and Martin E. Hickey

741 Synovial Cyst of the Transverse Ligament of the Atlas in a Patient With Os Odontoideum and Atlantoaxial Instability
Han Chang, Jong-Beom Park, and Ki-Won Kim

745 Aggressive Thoracic Actinomycosis Complicated by Vertebral Osteomyelitis and Epidural Abscess Leading to Spinal Cord Compression
Babington C. K. Yung, James C. K. Cheng, Tony T. F. Chan, Tony K.L. Loke, John Lo, and Pui Y. Lau

749 An Unusual Presentation of Solitary Fibrous Tumor
Rory B. Donnellan, Dhirendra Govender, Stewart H. Chite, and Ashley T. Landers

752 Malignant Spinal Neurofibrosarcoma
Rupert Kett-White, John L. Martin, E. Wyn Jones, and Ciaran O'Brien

756 Traumatic Lumbosacral Dislocation
Luis M. Veras del Monte and Juan Bagó

760 Letters to the Editor

761 Meetings of Interest for Spine Physicians and Surgeons

764 Information for Authors

April 1, 2000

767 Making the Best of Your Data

769 Potent Protective Effects of Melatonin on Experimental Spinal Cord Injury
Toru Fujimoto, Takafumi Nakamura, Takashi Ikeda, and Katsumasa Takagi

776 Sensory Innervation of the Lumbar Dura Mater Passing Through the Sympathetic Trunk in Rats
Yasunobu Konnai, Takashi Honda, Yasufumi Sekiguchi, Shinichi Kikuchi, and Yasuo Sugiura

783 Anterior Cervical Plating Reverses Load Transfer Through Multilevel Strut-Grafts
Denis J. DiAngelo, Kevin T. Foley, Keith A. Vossel, Y. Raja Rampersaud, and Thomas H. Jansen

795 Point of View

796 Cervical Myelopathy Caused by C3–C4 Spondylosis in Elderly Patients: A Radiographic Analysis of Pathogenesis
Hisanori Mihara, Katsuhiro Ohnari, Masashi Hachiya, Soichi Kondo, and Katsuhisa Yamada

800 Point of View

801 Health Outcome Assessment Before and After Anterior Cervical Discectomy and Fusion for Radiculopathy: A Prospective Analysis
Gregg R. Klein, Alexander R. Vaccaro, and Todd J. Albert

804 Chondrosarcoma of the Mobile Spine: Report on 22 Cases
S. Boriani, F. De Iure, S. Bandiera, L. Campanacci, R. Biagini, M. Di Fiore, L. Bandello, P. Picci, and P. Bacchini

813 The Effect of Continued Posterior Spinal Growth on Sagittal Contour in Patients Treated by Anterior Instrumentation for Idiopathic Scoliosis
Linda P. D'Andrea, Randal R. Betz, Lawrence G. Lenke, Jürgen Harms, David H. Clements, and Thomas G. Lowe

818 Point of View

819 Associations Between Patient Report of Symptoms and Anatomic Impairment Visible on Lumbar Magnetic Resonance Imaging
Paul F. Beattie, Steven P. Meyers, Paul Stratford, Richard W. Millard, and Gary M. Hollenberg

829 Abnormalities in Muscle Function During Gait in Relation to the Level of Lumbar Disc Herniation
E. Morag, D. E. Hurwitz, T. P. Andriacchi, M. Hickey, and G. B. J. Andersson

834 The Relation Between Pain Intensity, Disability, and the Episodic Nature of Chronic and Recurrent Low Back Pain
Raymond W. McGorry, Barbara S. Webster, Stover H. Snook, and Simon M. Hsiang

840 Point of View

842 Sudden and Unexpected Loading Generates High Forces on the Lumbar Spine
Anne F. Mannion, Michael A. Adams, and Patricia Dolan

853 Anterior Lumbar Fusion Improves Discogenic Pain at Levels of Prior Posterolateral Fusion
William T. Barrick, Jerome A. Schofferman, James B. Reynolds, Noel D. Goldthwaite, Michael McKeehen, Diane Keaney, and Arthur H. White

857 Point of View

858 Can Insertional Torque Predict Screw Loosening and Related Failures? An *In Vivo* Study of Pedicle Screw Fixation Augmenting Posterior Lumbar Interbody Fusion
Koichiro Okuyama, Eiji Abe, Tetsuya Suzuki, Yasuki Tamura, Mitzuho Chiba, and Kozo Sato

865 Patient Outcomes After Minimally Destabilizing Lumbar Stenosis Decompression: The "Port-Hole" Technique
Thomas J. Kleeman, Anne C. Hiscoe, and Eugene E. Berg

871 Influence of Macrophage Infiltration of Herniated Lumbar Disc Tissue on Outcome After Lumbar Disc Surgery
Chris Woertgen, Ralf Dirk Rothoerl, and Alexander Brawanski

876 A New System for the Anterior Restoration and Fixation of Thoracic Spinal Deformities Using an Endoscopic Approach
Sohei Ebara, Mikio Kamimura, Hidehiro Itoh, Tetsuya Kinoshita, Jun Takahashi, Kunio Takaoka, and Kuniyoshi Ohtsuka

884 Lumbosacral Radiculopathy Secondary to Metastatic Uterine Leiomyosarcoma: A Case Report
Kenneth P. Botwin and Paul J. Zak

888 Concomitant Post-Traumatic Craniocervical Junction Epidural Hematoma and Pontomedullary Junction Infarction: Clinical, Neurophysiologic, and Neuroradiologic Features
A. Oliviero, A. Insola, V. Santilli, T. Tartaglione, P. Profice, P. Tonali, and V. Di Lazzaro

891 Bending of the Cotrel-Dubousset Instrumentation After Direct Trauma: A Case Report
Arvind Nana, Zbigniew Gugala, Ronald W. Lindsey, Pedro M. Caram, and Jesse H. Dickson

895 Iatrogenic Spondylolysis Leading to Contralateral Pedicular Stress Fracture and Unstable Spondylolisthesis: A Case Report
Stephen G. Maurer, Kevin E. Wright, and John A. Bendo

899 Meetings of Interest for Spine Physicians and Surgeons

902 Information for Authors

April 15, 2000

905 Anterior Cervical Foraminotomy for Unilateral Radicular Disease
J. Patrick Johnson, Aaron G. Filler, Duncan Q. McBride, and Ulrich Batzdorf

910 Approaching the Upper Thoracic Vertebrae Without Sternotomy or Thoracotomy: A Radiographic Analysis With Clinical Application
Ashwini D. Sharan, Gregory J. Przybylski, and Lisa Tartaglino

917 Posterior Lumbar Interbody Fusion With Restoration of Lamina and Facet Fusion
Byung-Yoon Jun

923 Percutaneous Vertebroplasty for Pain Relief and Spinal Stabilization
John D. Barr, Michelle S. Barr, Thomas J. Lemley, and Richard M. McCann

929 Herniated Lumbar Disc Material as a Source of Free Glutamate Available to Affect Pain Signals Through the Dorsal Root Ganglion
J. Frederick Harrington, Arthur A. Messier, David Bereiter, Bryan Barnes, and Mel H. Epstein

937 The Effect of Age on Inflammatory Responses and Nerve Root Injuries After Lumbar Disc Herniation: An Experimental Study in a Canine Model
Toru Hasegawa, Howard S. An, Akihiko Inufusa, Yoshihiro Mikawa, and Ryo Watanabe

941 Magnetic Resonance Imaging and Histologic Evidence of Postoperative Back Muscle Injury in Rats
Ryuichi Gejo, Yoshiharu Kawaguchi, Takashi Kondoh, Eiichi Tabuchi, Hisao Matsui, Kunio Torii, Taketoshi Ono, and Tomoatsu Kimura

947 Muscle Response Pattern to Sudden Trunk Loading in Healthy Individuals and in Patients With Chronic Low Back Pain
Andrea Radebold, Jacek Cholewicki, Manohar M. Panjabi, and Tushar Ch. Patel

955 Anterior Cervical Fusion: A Finite Element Model Study on Motion Segment Stability Including the Effect of Osteoporosis
Raghu N. Natarajan, Bohua H. Chen, Howard S. An, and Gunnar B. J. Andersson

962 Complications of Pedicle Screw Fixation in Reconstructive Surgery of the Cervical Spine
Kuniyoshi Abumi, Yasuhiro Shono, Manabu Ito, Hiroshi Taneichi, Yoshihisa Kotani, and Kiyoshi Kaneda

970 Cervical and Thoracic Juxtafacet Cysts Causing Neurologic Deficits
Marcus A. Stoodley, Nigel R. Jones, and Grace Scott

974 Low Dose Propofol as a Supplement to Ketamine-Based Anesthesia During Intraoperative Monitoring of Motor-Evoked Potentials
Masahiko Kawaguchi, Takanori Sakamoto, Satoki Inoue, Meiko Kakimoto, Hitoshi Furuya, Tetsuya Morimoto, and Toshisuke Sakaki

980 Repeatability of Pain Drawings in a Low Back Pain Population
Donna D. Ohnmeiss

989 The Role of Paraspinal Muscle Spindles in Lumbosacral Position Sense in Individuals With and Without Low Back Pain
Simon Brumagne, Paul Cordo, Roeland Lysens, Sabine Verschueren, and Stephan Swinnen

995 A Review of the Association Between Cigarette Smoking and the Development of Nonspecific Back Pain and Related Outcomes
Mark S. Goldberg, Susan C. Scott, and Nancy E. Mayo

1015 Early Aggressive Exercise for Postoperative Rehabilitation After Discectomy
Jan M. Danielsen, Roar Johnsen, Svend K. Kibsgaard, and Eivind Hellevik

1021 Active Treatment of Chronic Neck Pain: A Prospective Randomized Intervention
Simo Taimela, Esa-Pekka Takala, Tom Asklöf, Kitty Seppälä, and Sirkka Parviainen

1028 Defining the Pediatric Spinal Thoracoscopy Learning Curve: Sixty-Five Consecutive Cases
Peter O. Newton, Kevin G. Shea, and Kirk F. Granlund

1034 Point of View

1036 Intrasseous Calcifying Pseudotumor of the Axis
Han Chang, Jong-Beom Park, and Ki-Won Kim

1040 Hepatic Ischemia as a Complication After Correction of Post-Traumatic Gibbus at the Thoracolumbar Junction
K. Sabine von Glinski, Christian Krettek, Michael Blauth, and Karl-Juergen Oldhafer

1045 Meetings of Interest for Spine Physicians and Surgeons

1048 Information for Authors

May 1, 2000

1051 Vertebroplasty: An Opportunity to Do Something Really Good for Patients

1053 The Efficacy of Interconnected Porous Hydroxyapatite in Achieving Posterolateral Lumbar Fusion in Sheep
Hani G. Baramki, Thomas Steffen, Phil Lander, Margaret Chang, and Dante Marchesi

1061 Biomechanical Evaluation of a New Bone Cement for Use in Vertebroplasty
Stephen M. Belkoff, John M. Mathis, Erik M. Erbe, and David C. Fenton

1065 The Effects of Cyclic Loading on Pull-Out Strength of Sacral Screw Fixation: An *In Vitro* Biomechanical Study
Qingan Zhu, William W. Lu, Andrew D. Holmes, Yinggang Zheng, Shizhen Zhong, and John C. Y. Leong

1070 Experimental Vertebroplasty Using Osteoconductive Granular Material
Gérard Cunin, Hervé Boissonnet, Hervé Petite, Cindy Blanchat, and Geneviève Guillemin

1077 Effect of Implant Design and Endplate Preparation on the Compressive Strength of Interbody Fusion Constructs
Thomas Steffen, Anthony Tsantrizos, and Max Aebi

1085 Sagittal Plane Configuration of the Sacrum in Spondylolisthesis
Spiro B. Antoniades, Kim W. Hammerberg, and Ronald L. DeWald

1092 Progressive Rotational Dislocation in Kyphoscoliotic Deformities: Presentation and Treatment
Reinhard D. Zeller and Jean Dubousset

1098 The Iliolumbar Ligament. Three-Dimensional Volume Imaging and Computer Reformatting by Magnetic Resonance: A Technical Note
James M. Hartford, Geoffrey M. McCullen, Robert Harris, and Cameron C. Brown

1104 Post-Traumatic Findings of the Spine After Earlier Vertebral Fracture in Young Patients: Clinical and MRI Study
Liisa I. Kerttula, Willy S. Serlo, Osmo A. Tervonen, Eija L. Pääkkö, and Heikki V. Vanharanta

1109 The Factors Associated With Neck Pain and Its Related Disability in the Saskatchewan Population
Pierre Côté, J. David Cassidy, and Linda Carroll

1118 Spinal Posture During Stooped Walking Under Vertical Space Constraints
M. Friedrich, A. Kranzl, I. Heiller, C. Kirtley, and T. Cermak

1126 The Role of Anticipation and Fear of Pain in the Persistence of Avoidance Behavior in Patients With Chronic Low Back Pain
Saud M. Al-Obaidi, Roger M. Nelson, Sumer Al-Awadhi, and Nadia Al-Shuwaie

1132 Cost-Effectiveness of Fusion With and Without Instrumentation for Patients With Degenerative Spondylolisthesis and Spinal Stenosis
Karen M. Kuntz, Robert K. Snider, James N. Weinstein, Malcolm H. Pope, and Jeffrey N. Katz

1140 The Test of Lasègue: Systematic Review of the Accuracy in Diagnosing Herniated Discs
Walter L. J. M. Devillé, Daniëlle A. W. M. van der Windt, Aida Džaferagić, P. D. Bezemer, and Lex M. Bouter

1148 A Review of Psychological Risk Factors in Back and Neck Pain
Steven J. Linton

1157 Successful Short-Segment Instrumentation and Fusion for Thoracolumbar Spine Fractures: A Consecutive 4½-Year Series
Jeffrey W. Parker, Joel R. Lane, Eldin E. Karaikovic, and Robert W. Gaines

1170 Point of View

1171 Vertebral Artery Occlusion After Acute Cervical Spine Trauma
Luis M. Veras, Salvador Pedraza-Gutiérrez, J. Castellanos, J. Capellades, José Casamitjana, and Alex Rovira-Cañellas

1178 Os Odontoideum With Cerebellar Infarction: A Case Report
Hayato Sasaki, Tomokazu Itoh, Hiroshi Takei, and Masahiro Hayashi

1182 A Post-Traumatic Ligamentum Flavum Progressive Hematoma: A Case Report
Katsuyuki Hirakawa, Junya Hanakita, Hideyuki Suwa, Norihiro Matsuoka, Masashi Oda, Hiroyuki Muro, and Takeo Fukushima

1185 *Eikenella corrodens* Vertebral Osteomyelitis Secondary to Direct Inoculation: A Case Report
Christopher R. Lehman, Jeffrey E. Deckey, and Serena S. Hu

1190 Meetings of Interest for Spine Physicians and Surgeons

1193 Information for Authors

1197 Internal Morphology of Human Cervical Pedicles
Manohar M. Panjabi, Eon K. Shin, Neal C. Chen, and Jaw-Lin Wang

1206 Spinal Glial Activation and Cytokine Expression After Lumbar Root Injury in the Rat
Hiroshi Hashizume, Joyce A. DeLeo, Raymond W. Colburn, and James N. Weinstein

1218 Perfusion-Limited Recovery of Evoked Potential Function After Spinal Cord Injury
Gregory D. Carlson, Carey D. Gorden, Shigenobu Nakazowa, Eiji Wada, Karen Warden, and Joseph C. LaManna

1227 Topography and Severity of Axonal Injury in Human Spinal Cord Trauma Using Amyloid Precursor Protein as a Marker of Axonal Injury
Ryan Cornish, Peter C. Blumbergs, Jim Manavis, Grace Scott, Nigel R. Jones, and Peter L. Reilly

1234 Management of Type II Dens Fractures: A Case-Control Study
Peter J. Lennarson, Homan Mostafavi, Vincent C. Traynelis, and Beverly C. Walters

1237 Point of View
Paul R. Cooper

1238
Beth A. Winkelstein, Roger W. Nightingale, William J. Richardson, and Barry S. Myers

1247 Morphometric Analysis of Thoracic and Lumbar Vertebrae in Idiopathic Scoliosis
Ulf R. Liljenqvist, Thomas M. Link, and Henry F. H. Halm

1254 Prognosis for People With Back Pain Under a No-Fault 24-Hour-Cover Compensation Scheme
Harry K. McNaughton, Adam Sims, and William J. Taylor

1258 Point of View
Nortin M. Hadler

1259
Denise M. Oleske, Gunnar B. J. Andersson, Steven A. Lavender, and Jerome J. Hahn

1266 Injuries to the Lateral Femoral Cutaneous Nerve During Spine Surgery
Yigal Mirovsky and Michael Neuwirth

1270 Efficacy and Validity of Radiofrequency Neurotomy for Chronic Lumbar Zygapophysial Joint Pain
Paul Dreyfuss, Bobby Halbrook, Kevin Pauza, Anand Joshi, Jerry McLarty, and Nikolai Bogduk

1278 Cervical Hemilaminectomy Reconstruction: Technical Note
Scott H. Purvines and Michael B. Pritz

1282 Point of View
Kiyoshi Hirabayashi

1283 Osteoid Osteoma of the Spine Treated With Percutaneous Computed Tomography–Guided Thermocoagulation
Jos A. Cové, Antonie H. Taminiau, Willem R. Obermann, and Geert M. Vanderschueren

1287 *Enterobacter agglomerans* Spondylodiscitis: A Possible, Unrecognized Complication of Tetracycline Therapy
Paul Porter and Christopher C. Wray

1290 Treatment of Cervical Cord Compression, Caused by Hereditary Multiple Exostosis, With Laminoplasty: A Case Report
Masayoshi Oga, Fumihiko Nakatani, Kou Ikuta, Takuya Tamaru, Jyunichi Arima, and Mamoru Tomishige

1293 Osteochondroma of the C5 Lamina With Cord Compression: Case Report and Review of the Literature
John Ratliff and Rand Voorhies

1296 Dumbbell Hydatid Cyst of the Spine: Case Report and Review of the Literature
Thamir A. Hamdan and Mubder A. Al-Kaisy

1300 Symptomatic Cervical Synovial Cyst Associated With an Os Odontoideum Diagnosed by Magnetic Resonance Imaging: Case Report and Review of the Literature
Fatma G. Aksoy and John M. Gomori

1303 Hypertrophic Dens Resulting in Cervical Myelopathy: Histologic Features of the Hypertrophic Dens
Kyoji Okada, Kozo Sato, and Eiji Abe

1308 Potential Applications of Gene Therapy to the Treatment of Spinal Disorders
Kotaro Nishida, Lars G. Gilbertson, Christopher H. Evans, and James D. Kang

1315 Imaging Corner

1317 Letters to the Editor

1319 Meetings of Interest for Spine Physicians and Surgeons

1322 Information for Authors

June 1, 2000

1325 Pin Loosening in a Halo–Vest Orthosis: A Biomechanical Study
Braden C. Fleming, Martin H. Krag, Dryver R. Huston, and Shigeaki Sugihara

1332 Delayed Apnea in Patients With Mid- to Lower Cervical Spinal Cord Injury
Kang Lu, Tao-Chen Lee, Cheng-Loong Liang, and Han-Jung Chen

1339 Nonoperative Management of Dens Fracture Nonunion in Elderly Patients Without Myelopathy
Robert Hart, Andrea Saterbak, Timothy Rapp, and Charles Clark

1343 Point of View

1344 Stability of Myelomeningocele Spines Treated With the Mayfield Two-Stage Anterior and Posterior Fusion Technique
William R. Osebold

1352 Longitudinal Changes in Trunkal Balance After Selective Fusion of King II Curves in Adolescent Idiopathic Scoliosis
R. Frez, Jack C. Y. Cheng, and Eric M.C. Wong

1360 Idiopathic Scoliosis: The Relation Between the Vertebral Canal and the Vertebral Bodies
Richard W. Porter

1367 Scoliosis in Rhythmic Gymnasts
Panayot I. Tanchev, Assen D. Dzherov, Anton D. Parushev, Dobrin M. Dikov, and Miroslav B. Todorov

1371 Point of View

1373 The Rates of False-Positive Lumbar Discography in Select Patients Without Low Back Symptoms
Eugene J. Carragee, Cary M. Tanner, Sanjay Khurana, Chris Hayward, John Welsh, Elaine Date, Thao Truong, Michael Rossi, and Chad Hagle

1381 Point of View

1382 Cervical Discography: Clinical Implications From 12 Years of Experience
Stephen A. Grubb and Carol K. Kelly

1389 Point of View

1390 Influence of Occupational Factors on the Relation Between Socioeconomic Status and Self-Reported Back Pain in a Population-Based Sample of German Adults With Back Pain
Ute Latza, Thomas Kohlmann, Ruth Deck, and Heiner Raspe

1398 Cost-Benefit of Muscle Cocontraction in Protecting Against Spinal Instability
Kevin P. Granata and William S. Marras

1405 Sensitivity and Specificity of the Indicators of Sincere Effort of the Epic Lift Capacity Test on a Previously Injured Population
Marc A. Jay, Jon M. Lamb, Richard L. Watson, Ian A. Young, Frank J. Fearon, James M. Alday, and Angelique G. Tindall

1413 Lumbar–Pelvic Coordination Is Influenced by Lifting Task Parameters
Kevin P. Granata and Adam H. Sanford

1419 A Controlled Trial of an Educational Pamphlet to Prevent Disability After Occupational Low Back Injury
Rowland G. Hazard, Sheila Reid, Larry D. Haugh, and Glen McFarlane

1424 Lumbar Spinal Stenosis: Conservative or Surgical Management? A Prospective 10-Year Study
Tom Amundsen, Henrik Weber, Helge J. Nordal, Bjørn Magnaes, Michael Abdelnoor, and Finn Lilleås

1435 Point of View

1437 Lumbar Interbody Fusion Using the Brantigan I/F Cage for Posterior Lumbar Interbody Fusion and the Variable Pedicle Screw Placement System: Two-Year Results From a Food and Drug Administration Investigational Device Exemption Clinical Trial
John W. Brantigan, Arthur D. Steffee, Mary L. Lewis, Linda M. Quinn, and J. Maarten Persenaire

1447 Harvesting the Intact Cadaveric Cervical Spine (C0–Th1)
Kai Yang and Thomas Steffen

1450 Neonatal Infectious Spondylitis of the Cervical Spine Presenting With Quadriplegia: A Case Report
Isabelle V. van Dalen and Minne Heeg

1453 Rosai–Dorman Disease Causing Cervical Myelopathy
James P. Hollowell, Christopher E. Wolfla, Nirav C. Shah, Leighton P. Mark, and Michael H. Whittaker

1457 Femoral Artery Ischemia During Spinal Scoliosis Surgery Detected by Posterior Tibial Nerve Somatosensory-Evoked Potential Monitoring
David G. Vossler, Thomas Stonecipher, and Michael D. Millen

1460 Letters

1461 Meetings of Interest for Spine Physicians and Surgeons

1464 Information for Authors

June 15, 2000

1467 Using Generic Measures of Functional Health and Well-Being to Increase Understanding of Disease Burden

1468

1471 Application of Nucleus Pulposus to the Nerve Root Simultaneously Reduces Blood Flow in Dorsal Root Ganglion and Corresponding Hindpaw in the Rat
Shoji Yabuki, Tamaki Igarashi, and Shinichi Kikuchi

1477 Intervertebral Disc Cell Death Is Dependent on the Magnitude and Duration of Spinal Loading
Jeffrey C. Lotz and Jennie R. Chin

1482 Point of View

1484 Natural History of Individuals With Asymptomatic Disc Abnormalities in Magnetic Resonance Imaging: Predictors of Low Back Pain–Related Medical Consultation and Work Incapacity
Norbert Boos, Norbert Semmer, Achim Elfering, Volker Schade, Imre Gal, Marco Zanetti, Rudolf Kissling, Niklaus Buchegger, Juerg Hodler, and Chris J. Main

1493 Magnetic Resonance Evaluation of Recurrent Disc Herniation: Is Gadolinium Necessary?
William J. Mullin, Kenneth B. Heithoff, Thomas J. Gilbert, Jr., and Donald L. Renfrew

1500 Reoperations After Lumbar Disc Surgery: A Population-Based Study of Regional and Interspecialty Variations
Ilmo Keskimäki, Seppo Seitsalo, Heikki Österman, and Pekka Rissanen

1507 Point of View

1509 The Impact of Spinal Problems on the Health Status of Patients: Have We Underestimated the Effect?
Jason C. Fanuele, Nancy J. O. Birkmeyer, William A. Abdu, Tor D. Tosteson, and James N. Weinstein

1515 Cauda Equina Syndrome Secondary to Lumbar Disc Herniation: A Meta-Analysis of Surgical Outcomes
Uri Michael Ahn, Nicholas U. Ahn, Jacob M. Buchowski, Elizabeth S. Garrett, Ann N. Siebern, and John P. Kostuik

1523 Can Exercise Therapy Improve the Outcome of Microdiscectomy?
Patricia Dolan, Keith Greenfield, Richard J. Nelson, and Ian W. Nelson

1533 Prospective Study of Surgical Treatment of Degenerative Spondylolisthesis: Comparison Between Decompression Alone and Decompression With Graf System Stabilization
Shinichi Konno and Shinichi Kikuchi

1538 Radiation Exposure During Fluoroscopically Assisted Pedicle Screw Insertion in the Lumbar Spine
David P. Gwynne Jones, Peter A. Robertson, Brian Lunt, and Suzanne A. Jackson

1542 Morphologic Considerations of C2 Isthmus Dimensions for the Placement of Transarticular Screws
Irwin M. Mandel, Brandon J. Kambache, Cheryl A. Petersilge, Brian Johnstone, and Jung U. Yoo

1547 Point of View

1548 Load-Carrying Capacity of the Human Cervical Spine in Compression Is Increased Under a Follower Load
Avinash G. Patwardhan, Robert M. Havey, Alexander J. Ghanayem, Haagen Diener, Kevin P. Meade, Brian Dunlap, and Scott D. Hodges

1555 Biomechanical Assessment of Transoral Plate Fixation for Atlantoaxial Instability
Frank Kandziora, Fridun Kerschbaumer, Michael Starker, and Thomas Mittlmeier

1562 Dural Ectasia Is Associated With Back Pain in Marfan Syndrome
Nicholas U. Ahn, Paul D. Sponseller, Uri M. Ahn, Leelakrishna Nallamshetty, Brian S. Kuszyk, and S. James Zinreich

1569 Effects of a Lifting Belt on Spine Moments and Muscle Recruitments After Unexpected Sudden Loading
Steven A. Lavender, Kharwar Shakeel, Gunnar B. J. Andersson, and James S. Thomas

1578 Point of View

1579 Treatment of Acute Low Back Pain With the Cox-2–Selective Anti-Inflammatory Drug Nimesulide: Results of a Randomized, Double-Blind Comparative Trial *Versus* Ibuprofen
Timo Pohjolainen, Antti Jekunen, Lotta Autio, and Heikki Vuorela

1586 Ureteral Injury During Laparoscopy-Assisted Anterior Lumbar Fusion
J. A. Guingrich and J. C. McDermott

1589 Aneurysmal Bone Cyst of the Spine With Familial Incidence
Matthew R. DiCaprio, Michael J. Murphy, and Robert L. Camp

1593 Acute Traumatic Myelopathy Secondary to a Thoracic Cyst in a Professional Football Player
Bryan Lynn, Robert G. Watkins, and Robert G. Watkins

1596 Meetings of Interest for Spine Physicians and Surgeons

1599 Information for Authors

July 1, 2000

1603 Vulnerability of the Sympathetic Trunk During the Anterior Approach to the Lower Cervical Spine
Nabil A. Ebraheim, Jike Lu, Hua Yang, Bruce E. Heck, and Richard A. Yeasting

1607 Biomechanical Rationale for the Pathology of Rheumatoid Arthritis in the Craniovertebral Junction
Christian M. Puttlitz, Vijay K. Goel, Charles R. Clark, Vincent C. Traynelis, Jeffrey L. Scifert, and Nicole M. Grosland

1617 The Biomechanical Effect of Postoperative Hypolordosis in Instrumented Lumbar Fusion on Instrumented and Adjacent Spinal Segments
Shinji Umehara, Michael R. Zindrick, Avinash G. Patwardhan, Robert M. Havey, Lori A. Vrbos, Gary W. Knight, Suichi Miyano, Marie Kirincic, Kiyoshi Kaneda, and Mark A. Lorenz

1625 Mechanical Initiation of Intervertebral Disc Degeneration
Michael A. Adams, Brian J. C. Freeman, Helen P. Morrison, Ian W. Nelson, and Patricia Dolan

1637 The Effects of Pedicle Screw Adjustments on Neural Spaces in Burst Fracture Surgery
Manohar M. Panjabi, Toyohiko Oda, and Jaw-Lin Wang

1644 The Effect of Kyphosis on the Mechanical Strength of a Long-Segment Posterior Construct Using a Synthetic Model
Joseph Orchowski, David W. Polly, Jr, William R. Klemme, Itaru Oda, and Bryan Cunningham

1649 The Role of Bone Graft Force in Stabilizing the Multilevel Anterior Cervical Spine Plate System
Jaw-Lin Wang, Manohar M. Panjabi, and Taku Isomi

1655 Placement of Pedicle Screws in the Human Cadaveric Cervical Spine: Comparative Accuracy of Three Techniques
Steven C. Ludwig, David L. Kramer, Richard A. Balderston, Alexander R. Vaccaro, Kevin F. Foley, and Todd J. Albert

1668 Hematogenous Pyogenic Spinal Infections and Their Surgical Management
Alexander G. Hadjipavlou, Jon T. Mader, Jeff T. Necessary, and Anthony J. Muffoletto

1680 A Comparison of Single-Rod Instrumentation With Double-Rod Instrumentation in Adolescent Idiopathic Scoliosis
J. Michael Wattenbarger, B. Stephen Richards, and John A. Herring

1689 A Noninvasive Anthropometric Technique for Measuring Kyphosis and Lordosis: An Application for Idiopathic Scoliosis
Michel A. Leroux, Karl Zabjek, Geneviève Simard, Johanne Badeaux, Christine Coillard, and Charles H. Rivard

1695 Magnetic Resonance Anatomic Study of Iliocava Junction and Left Iliac Vein Positions Related to L5–S1 Disc
Jaume Capellades, Ferràn Pellisé, Alex Rovira, Elisenda Grivé, Salvador Pedraza, and Carlos Villanueva

1701 Is There Increased Intervertebral Mobility in Isthmic Adult Spondylolisthesis? A Matched Comparative Study Using Roentgen Stereophotogrammetry
Paul Axelsson, Ragnar Johnsson, and Björn Strömqvist

1704 Aerobic Fitness Testing in Patients With Chronic Low Back Pain: Which Test Is Best?
Harriet Wittink, Theresa Hoskins Michel, Ronald Kulich, Anita Wagner, Andrew Sukiennik, Raymond Maciewicz, and William Rogers

1711 Surgery *Versus* Conservative Management in Adult Isthmic Spondylolisthesis—A Prospective Randomized Study: Part 1
Hans Möller and Rune Hedlund

1716 Instrumented and Noninstrumented Posterolateral Fusion in Adult Spondylolisthesis—A Prospective Randomized Study: Part 2
Hans Möller and Rune Hedlund

1722 Comparison Between the Outer Table and Intracortical Methods of Obtaining Autogenous Bone Graft From the Iliac Crest
Yigal Mirovsky and Mike G. Neuwirth

1726 Cervical Disc Herniation in a Patient With Congenital Insensitivity to Pain: A Case Report
James D. Kang and Henry H. Bohlman

1729 Postoperative Synergistic Gangrene After Spinal Fusion
Christopher P. Kauffman, Christopher M. Bono, Paul P. Vessa, and Kenneth G. Swan

1733 Liposarcoma in the Epidural Space
Sacit Turanli, Hamza Özer, Tuna Özyürekoglu, and Ece Cakiroglu

1736 Septic Arthritis of a Lumbar Facet Joint Caused by *Staphylococcus aureus*
Pascale A. Rombauts, Patrick M. Linden, Annemie J. Buyse, Michel P. Snoecx, Roeland J. Lysens, and Stefaan S. Gryspeerdt

1739 Letters

1742 Meetings of Interest for Spine Physicians and Surgeons

1745 Information for Authors

July 15, 2000

1749 Results of a Longer Than 10-Year Follow-Up of Patients With Rheumatoid Arthritis Treated by Occipitocervical Fusion
Shunji Matsunaga, Kousei Ijiri, and Hiroaki Koga

1754 Minimum 10-Year Outcome of Decompressive Laminectomy for Degenerative Lumbar Spinal Stenosis
Tetsuhiro Iguchi, Akira Kurihara, Junichi Nakayama, Keizou Sato, Masahiro Kurosaka, and Kyoko Yamasaki

1760 Accuracy of Atlantoaxial Transarticular Screw Insertion
Takeshi Fuji, Takenori Oda, Yasuji Kato, Satoru Fujita, and Masamichi Tanaka

1765 Selective Developmental Regulation of Gene Expression for Insulin-Like Growth Factor–Binding Proteins in Mouse Spinal Cord
Paul M. Arnold, Jianxin Y. Ma, Bruce A. Citron, Mikhail N. Zoubine, and Barry W. Festoff

1771 Prediction of Peripheral Tears in the Anulus of the Intervertebral Disc
Young Kim

1775 Postfracture Instability of Vertebrae With Simulated Defects Can Be Predicted From Computed Tomography Data
Henning Windhagen, John A. Hipp, and Wilson C. Hayes

1781 Point of View

1782 Early Intervention in Whiplash-Associated Disorders: A Comparison of Two Treatment Protocols
Mark Rosenfeld, Ronny Gunnarsson, and Peter Borenstein

1786 Point of View

1788 T-Saw Laminoplasty for the Management of Cervical Spondylotic Myelopathy: Clinical and Radiographic Outcome
Charles C. Edwards II, John G. Heller, and D. Hal Silcox III

1795 Do Radiographic Parameters Correlate With Clinical Outcomes in Adolescent Idiopathic Scoliosis?
Linda P. D'Andrea, Randal R. Betz, Lawrence G. Lenke, David H. Clements, Thomas G. Lowe, Andrew Merola, Thomas Haher, Jürgen Harms, Gail K. Huss, Kathy Blanke, and Sally McGlothlen

1801 Point of View

1803 Can Discography Cause Long-Term Back Symptoms in Previously Asymptomatic Subjects?
Eugene J. Carragee, Yung Chen, Cary M. Tanner, Chris Hayward, Michael Rossi, and Chad Hagle

1809 The Role of Physical Exercise and Inactivity in Pain Recurrence and Absenteeism From Work After Active Outpatient Rehabilitation for Recurrent or Chronic Low Back Pain: A Follow-Up Study
Simo Taimela, Carlo Diederich, Marc Hubsch, and Michel Heinricy

1817 Relationship Between Functional Evaluation Measures and Self-Assessment in Nonacute Low Back Pain
Martha E. Cox, Steeve Asselin, Serge A. Gracovetsky, Mark P. Richards, Nicholas M. Newman, Vladimir Karakusevic, Lijie Zhong, and Jerry N. Fogel

1826 Point of View

1827 Deep Vein Thrombosis After Major Spinal Surgery: Incidence in an East Asian Population
Hwan Mo Lee, Kyung Soo Suk, Seong Hwan Moon, Dong Jun Kim, Jin Man Wang, and Nam Hyun Kim

1831 Appropriateness of Surgery for Sciatica: Reliability of Guidelines From Expert Panels
John-Paul Vader, François Porchet, Tania Larequi-Lauber, Robert W. Dubois, and Bernard Burnand

1837 Outcome of One-Level Posterior Lumbar Interbody Fusion for Spondylolisthesis and Postoperative Intervertebral Disc Degeneration Adjacent to the Fusion
Naohisa Miyakoshi, Eiji Abe, Yoichi Shimada, Koichiro Okuyama, Tetsuya Suzuki, and Kozo Sato

1843 Unilateral *Versus* Bilateral Pedicle Screw Fixation in Lumbar Spinal Fusion
Kyung Soo Suk, Hwan Mo Lee, Nam Hyun Kim, and Jung Won Ha

1848 Pseudoaneurysm of the Deep Circumflex Iliac Artery: A Rare Complication at an Anterior Iliac Bone Graft Donor Site
Masashi Neo, Mutsumi Matsushita, Toru Morita, and Takashi Nakamura

1852 Lumbar Paraspinal Myonecrosis After Abdominal Vascular Surgery: A Case Report
Naoki Osamura, Keisuke Takahashi, Masamitu Endo, Hiroshi Kurumaya, and Iwao Shima

1855 Endoscopic Approaches to Metastatic Thoracic Disease
Robert F. McLain and Isador H. Lieberman

1859 Advances in Secondary Spinal Cord Injury: Role of Apoptosis

1867 Letters to the Editor

1868 Meetings of Interest for Spine Physicians and Surgeons

August 1, 2000

1871 Effects of Very High Antibiotic Concentrations on Human Intervertebral Disc Cell Proliferation, Viability, and Metabolism *In Vitro*
Gretchen L. Hoelscher, Helen E. Gruber, Geoff Coldham, Jared H. Grigsby, and Edward N. Hanley, Jr

1878 Effects of Core Body Temperature on Changes in Spinal Somatosensory-Evoked Potential in Acute Spinal Cord Compression Injury: An Experimental Study in the Rat
I-Ming Jou

1886 Effect of Electrical Stimulation of Peripheral Nerves on Neuropathic Pain
Fumihiko Hanai

1893 Torsional Rigidity of Scoliosis Constructs
Kirkham B. Wood, Fred A. Wentorf, James W. Ogilvie, and Ki-Tack Kim

1899 Segmental Stability and Compressive Strength of Posterior Lumbar Interbody Fusion Implants
Anthony Tsantrizos, Hani G. Baramki, Seth Zeidman, and Thomas Steffen

1908 Rigid Fusion After Cloward Operation for Cervical Disc Disease Using Autograft, Allograft, or Xenograft: A Randomized Study With Radiostereometric and Clinical Follow-Up Assessment
Håkan Löfgren, Valur Johannsson, Tord Olsson, Leif Ryd, and Bo Levander

1917 A Prospective Study of Serum Pseudocholinesterase Levels in Patients With Chronic Spinal Pain: A Preliminary Study
Bruce M. Cameron, Robert C. Allen, and Carl Merril

1925 The Use of Nonorganic Signs and Symptoms as a Screening Tool for Return-To-Work in Patients With Acute Low Back Pain
Julie M. Fritz, Robert S. Wainner, and Gregory E. Hicks

1932 Cineradiographic Motion Analysis of Normal Lumbar Spine During Forward and Backward Flexion
Masahito Harada, Kuniyoshi Abumi, Manabu Ito, and Kiyoshi Kaneda

1938 Cervical Muscle Dysfunction in the Chronic Whiplash Associated Disorder Grade II (WAD-II)
Marc J. Nederhand, Maarten J. IJzerman, Hermie J. Hermens, Chris T.M. Baten, and Gerrit Zilvold

1944 Comparison of Single- and Dual-Rod Techniques for Posterior Spinal Instrumentation in the Treatment of Adolescent Idiopathic Scoliosis
Henry W. Albers, M. Timothy Hresko, Jeffery Carlson, and John E. Hall

1950 Longitudinal Quantitative Measures of the Natural Course of Low Back Pain Recovery
Sue A. Ferguson, William S. Marras, and Purnendu Gupta

1957 Decrease in Trunk Muscular Response to Perturbation With Preactivation of Lumbar Spinal Musculature
Ian A.F. Stokes, Mack Gardner-Morse, Sharon M. Henry, and Gary J. Badger

1965 Access to Pedestrian Roads, Daily Activities, and Physical Performance of Adolescents
Astrid N. Sjolie

1973 Does Early Intervention With a Light Mobilization Program Reduce Long-Term Sick Leave for Low Back Pain?
Eli Molde Hagen, Hege R. Eriksen, and Holger Ursin

1977 Reduction and Fixation of Sacroiliac Joint Dislocation by the Combined Use of S1 Pedicle Screws and the Galveston Technique
Kuniyoshi Abumi, Michinori Saita, Takahiro Iida, and Kiyoshi Kaneda

1984 Idiopathic Spinal Cord Herniation: Report of Three Cases and Review of the Literature
Eiji Wada, Kazuo Yonenobu, and Jin Kang

1989 Vertebral Artery Anomaly With Atraumatic Dissection Causing Thromboembolic Ischemia: A Case Report
R. Sean Jackson, Anthony H. Wheeler, and Bruce V. Darden II

1993 Primary Intradural Extramedullary Ependymoma: Case Report and Review of the Literature
Hugues Duffau, Miloudi Gazzaz, Michèle Kujas, and Denis Fohanno

1996 Extraskeletal Ewing's Sarcoma: A Case Report and Review of the Literature
John G. Kennedy, Stephen Eustace, Robert Caulfield, David J. Fennelly, Brian Hurson, and Kieron S. O'Rourke

2000 Imaging Corner

2002 Letters

2006 Meetings of Interest for Spine Physicians and Surgeons

August 15, 2000

2009 Anatomic and Biomechanical Analysis of the Lower Lumbar Foraminal Ligaments
Peter F. Grimes, Jennifer B. Massie, and Steven R. Garfin

2015 Sensory Innervation of the Sacroiliac Joint in Rats
Yasuaki Murata, Kazuhisa Takahashi, Masatsune Yamagata, Yuzuru Takahashi, Yutaka Shimada, and Hideshige Moriya

2020 Motion in Lumbar Functional Spine Units During Side Bending and Axial Rotation Moments Depending on the Degree of Degeneration
Martin Krismer, Christian Haid, Hannes Behensky, Peter Kapfinger, Franz Landauer, and Franz Rachbauer

2028 Anterior Fusion for Rotationally Unstable Cervical Spine Fractures
Robert M. Lifeso and Michael A. Colucci

2035 Management of Cervical Spinal Fractures in Ankylosing Spondylitis With Posterior Fixation
Derek A. Taggard and Vincent C. Traynelis

2039 Point of View

2040 Three- and Four-Level Anterior Cervical Discectomy and Fusion With Plate Fixation: A Prospective Study
Michael J. Bolesta, Glenn R. Rechtine, II, and Ann Marie Chrin

2045 Point of View

2047 Computed Tomographic Findings in Patients With Persistent Sacroiliac Pain After Posterior Iliac Graft Harvesting
Nabil A. Ebraheim, Hossein Elgafy, and Hassan B. Semaan

2052 Breast Cancer Mortality After Diagnostic Radiography: Findings From the U.S. Scoliosis Cohort Study
Michele Morin Doody, John E. Lonstein, Marilyn Stovall, David G. Hacker, Nickolas Luckyanov, Charles E. Land, for the U.S. Scoliosis Cohort Study Collaborators

2064 Effects of Thoracolumbosacral Orthosis on Spinal Deformities, Trunk Asymmetry, and Frontal Lower Rib Cage in Adolescent Idiopathic Scoliosis
Panagiotis Korovessis, Christos Kyrkos, Grigoris Piperos, and Panayotis N. Soucacos

2072 Cobb Method or Harrison Posterior Tangent Method: Which to Choose for Lateral Cervical Radiographic Analysis
Deed E. Harrison, Donald D. Harrison, Rene Cailliet, Stephan J. Troyanovich, Tadeusz J. Janik, and Burt Holland

2079 Reliability of Magnetic Resonance Imaging in Detecting Posterior Ligament Complex Injury in Thoracolumbar Spinal Fractures
Hwan-Mo Lee, Hak-Sun Kim, Dong-Jun Kim, Kyung-Soo Suk, Jin-Oh Park, and Nam-Hyun Kim

2084 Point of View

2085 A Prospective Follow-Up Study of Low Back Pain in the Community
Robin Waxman, Alan Tennant, and Philip Helliwell

2091 Minimal Influence of Facet Joint Anesthesia on Isokinetic Muscle Performance in Patients With Chronic Degenerative Low Back Disorders
Inger Holm, Astrid Friis, Jens Ivar Brox, Ragnhild Gunderson, and Harald Steen

2095 Development and Initial Validation of the Back Pain Functional Scale
Paul W. Stratford, Jill M. Binkley, and Daniel L. Riddle

2103 Mechanisms of Action of Lumbar Supports: A Systematic Review
Mireille N. M. van Poppel, Michiel P. de Looze, Bart W. Koes, Tjabe Smid, and Lex M. Bouter

2114 Systematic Review of Psychosocial Factors at Work and in Private Life as Risk Factors for Back Pain
Wilhelmina E. Hoogendoorn, Mireille N. M. van Poppel, Paulien M. Bongers, Bart W. Koes, and Lex M. Bouter

2126 Do Functional Tests Predict Low Back Pain?
Esa-Pekka Takala and Eira Viikari-Juntura

2133 Atlantoaxial Subluxation Associated With Ossification of Posterior Longitudinal Ligament of the Cervical Spine
Mitsuhiro Takasita, Hirofumi Matsumoto, Shouichi Uchinou, Hiroshi Tsumura, and Takehiko Torisu

2137 Spontaneous Atlantoaxial Rotatory Fixation in Old Age After Cerebral Infarction: Case Report
Kanji Mori, Sinsuke Hukuda, Akitomo Katsuura, Yasuo Saruhashi, and Shuzo Asajima

2141 Alkaptonuria With Lumbar Disc Herniation: A Report of Two Cases
Erhan Emel, Feyza Karagöz, İ. Hüseyin Aydın, Selim Hacısalihoğlu, and M. Hakan Seyithanoğlu

2145 Imaging Corner

2148 Letter to the Editor

2149 Meetings of Interest for Spine Physicians and Surgeons

September 1, 2000

2153 Anti-Apoptotic Effects of IGF-1 and PDGF on Human Intervertebral Disc Cells *In Vitro*
Helen E. Gruber, H. James Norton, and Edward N. Hanley, Jr.

2158 Developmental Toxicity of Valproic Acid During Embryonic Chick Vertebral Chondrogenesis
Anupam Basu and Frederick H. Wezeman

2165 Effect of Anular Repair on the Healing Strength of the Intervertebral Disc: A Sheep Model
Bradley D. Ahlgren, Wen Lui, Harry N. Herkowitz, Manohar M. Panjabi, and Jean-Paul Guiboux

2171 Disc Degeneration: A Human Cadaveric Study Correlating Magnetic Resonance Imaging and Quantitative Discomanometry
Edward P. Southern, Mark A. Fye, Manohar M. Panjabi, Tushar Ch. Patel, and Jacek Cholewicki

2176 The Geometry of the Human Paraspinal Muscles With the Aid of Three-Dimensional Computed Tomography Scans and 3-Space Isotrak
Kees A. Poelstra, Mark F. Eijkelkamp, and Albert G. Veldhuizen

2180 The Effects of Staged Static Cervical Flexion-Distraction Deformities on the Patency of the Vertebral Arterial Vasculature
Ernst Sim, Alexander R. Vaccaro, Andrea Berzlanovich, and Simon Pienaar

2187 Sexual Dysfunction in Men With Paraparesis in Lumbar Burst Fractures
Hak-Sun Kim, Nam-Hyun Kim, Hwan-Mo Lee, Hui-Wan Park, Jung-Won Ha, and Jin-Oh Park

2191 Histochemistry and Morphology of the Multifidus Muscle in Lumbar Disc Herniation: Comparative Study Between Diseased and Normal Sides
Wei-Ping Zhao, Yoshiharu Kawaguchi, Hisao Matsui, Masahiko Kanamori, and Tomoatsu Kimura

2200 Efficacy of Coughing in Tetraplegic Patients
Cees P. van der Schans, D. Albertus Piers, and Gerdina A. Mulder

2204 The Effect of Variation in Arm Position on Sagittal Spinal Alignment
Ravishankar Vedantam, Lawrence G. Lenke, Keith H. Bridwell, Douglas L. Linville, and Kathy Blanke

2210 Exploration of Physicians' Recommendations for Activities in Chronic Low Back Pain
James Rainville, Nels Carlson, Peter Polatin, Robert J. Gatchel, and Aage Indahl

2219 Point of View

2221 Deconditioning in Patients With Chronic Low Back Pain: Fact or Fiction?
Harriët Wittink, Theresa Hoskins Michel, Anita Wagner, Andrew Sukiennik, and William Rogers

2229 Effect of the Spine Practitioner on Patient Smoking Status
Glenn R. Rechtine II, William Frawley, Antonio Castellvi, Ann Gowski, and Ann Marie Chrin

2234 Anorectal and Bladder Function After Sacrifice of the Sacral Nerves
Sadaaki Nakai, Hidezo Yoshizawa, Shigeru Kobayashi, Koutarou Maeda, and Yoshihiro Okumura

2239 Point of View

2240 Single-Stage Posterolateral Transpedicle Approach for Spondylectomy, Epidural Decompression, and Circumferential Fusion of Spinal Metastases
Mark H. Bilsky, Patrick Boland, Eric Lis, Jeffrey J. Raizer, and John H. Healey

2250 Point of View

2251 Prone Position Endoscopic Transthoracic Release With Simultaneous Posterior Instrumentation for Spinal Deformity: A Description of the Technique
Isador H. Lieberman, Paul T. Salo, R. Douglass Orr, and Brenda Kraetschmer

2258 Missing Anterior Cervical Plate and Screws: A Case Report
Shunsuke Fujibayashi, Jitsuhiko Shikata, Nobuhiro Kamiya, and Chiaki Tanaka

2262 Primary Non-Hodgkin's Lymphoma of the Spinal Cord
Hendrik Pels, Ina Vogt, Thomas Klockgether, and Uwe Schlegel

2265 Intramedullary Spinal Tuberculoma: A Case Report
Cetin Refik Kayaoglu, Yusuf Tuzun, Zeki Boga, Fazli Erdogan, Metin Gorguner, and Ismail Hakki Aydin

2269 Split Cord Malformation With Diastematomyelia Presenting as Neurogenic Claudication in an Adult: A Case Report
Richard Kaminker, Jan Fabry, Rajiv Midha, and Joel A. Finkelstein

2272 Imaging Corner

2274 Meetings of Interest for Spine Physicians and Surgeons

September 15, 2000

2277 Peer Review: Quality Improvement At Its Best

2280 Professional Competence and Subspecialty Certification

2285 Pedicle Morphology in Thoracic Adolescent Idiopathic Scoliosis: Is Pedicle Fixation an Anatomically Viable Technique?
Michael F. O'Brien, Lawrence G. Lenke, Steven Mardjetko, Thomas G. Lowe, Yinong Kong, Kevin Eck, and David Smith

2294 The Role of Directly Applied Hypothermia in Spinal Cord Injury
John R. Dimar, II, Christopher B. Shields, Y. P. Zhang, Darlene A. Burke, George H. Raque, and Steven D. Glassman

2303 Biomechanical Properties of Anterior Thoracolumbar Multisegmental Fixation: An Analysis of Construct Stiffness and Screw–Rod Strain
Itaru Oda, Bryan W. Cunninghamc, Guy A. Lee, Kuniyoshi Abumi, Kiyoshi Kaneda, and Paul C. McAfee

2312 Treatment of Selected Neuromuscular Patients With Posterior Instrumentation and Arthrodesis Ending With Lumbar Pedicle Screw Anchorage
Camden Whitaker, Douglas C. Burton, and Marc Asher

2319 Prospective Pulmonary Function Evaluation Following Open Thoracotomy for Anterior Spinal Fusion in Adolescent Idiopathic Scoliosis
Eric J. Graham, Lawrence G. Lenke, Thomas G. Lowe, Randal R. Betz, Keith H. Bridwell, Y. Kong, and Kathy Blanke

2326 Effectiveness of the Boston Brace in Treatment of Large Curves in Adolescent Idiopathic Scoliosis
Jeffrey W. Wiley, Jeffrey D. Thomson, Thomas M. Mitchell, Brian G. Smith, and John V. Banta

2333 The Low Lumbar Spine Below Cotrel–Dubousset Instrumentation: Long-Term Findings
F. J. S. Pérez-Grueso, N. Fernández-Baíllo, S. Arauz De Robles, and A. García Fernández

2342 Indications of Proximal Thoracic Curve Fusion in Thoracic Adolescent Idiopathic Scoliosis: Recognition and Treatment of Double Thoracic Curve Pattern in Adolescent Idiopathic Scoliosis Treated With Segmental Instrumentation
Se-Il Suk, Won-Joong Kim, Chang-Seop Lee, Sang-Min Lee, Jin-Hyok Kim, Ewy-Ryong Chung, and Ji-Ho Lee

2350 Results of Brace Treatment of Scoliosis in Marfan Syndrome
Paul D. Sponseller, Meenesh Bhimani, David Solacoff, and John P. Dormans

2355 A Comparison of the Effects of Patient-Controlled Analgesia With Intravenous Opioids *Versus* Epidural Analgesia on Recovery After Surgery for Idiopathic Scoliosis
Drew H. Van Boerum, John T. Smith, and Michael J. Curtin

2358 Coronal Plane Imbalance in Adolescent Idiopathic Scoliosis With Left Lumbar Curves Exceeding 40°: The Role of the Lumbosacral Hemicurve
James D. Schwender and Francis Denis

2364 A Prospective Comparison of Neurogenic Mixed Evoked Potential Stimulation Methods: Utility of Epidural Elicitation During Posterior Spinal Surgery
Tracy J. Wilson-Holden, Anne M. Padberg, Jeffery D. Parkinson, Keith H. Bridwell, Lawrence G. Lenke, and George S. Bassett

2372 Localization of Susceptibility to Familial Idiopathic Scoliosis
Carol A. Wise, Robert Barnes, Joseph Gillum, John A. Herring, Anne M. Bowcock, and Michael Lovett

2381 Further Development and Validation of the Scoliosis Research Society (SRS) Outcomes Instrument
Marc A. Asher, Sue Min Lai, and Douglas C. Burton

2387 The Estimated Cost of School Scoliosis Screening
Barbara P. Yawn and Roy A. Yawn

2392 Parents' and Patients' Preferences and Concerns in Idiopathic Adolescent Scoliosis: A Cross-Sectional Preoperative Analysis
Keith H. Bridwell, Harry L. Shufflebarger, Lawrence G. Lenke, Thomas G. Lowe, Randal R. Betz, and George S. Bassett

2400 Complications of Posterior Iliac Crest Bone Grafting in Spine Surgery in Children
David L. Skaggs, Michael A. Samuelson, Julie M. Hale, Robert M. Kay, and Vernon T. Tolo

2403 Video-Assisted Thoracoscopic Surgery in the Prone Position
Andrew G. King, Tara E. Mills, William A. Loe, Jr., Norman B. Chutkan, and Tim S. Revels

2407 Analysis of Titanium Mesh Cages in Adults With Minimum 2-Year Follow-Up
Kevin R. Eck, Keith H. Bridwell, Felix F. Ungacta, Mark A. Lapp, Lawrence G. Lenke, and K. Daniel Riew

2416 Genetics of Familial Idiopathic Scoliosis
Nancy Hadley Miller

2419 Imaging Corner

2421 Meetings of Interest for Spine Physicians and Surgeons

October 1, 2000

2425 Fos Expression in the Rat Brain and Spinal Cord Evoked by Noxious Stimulation to Low Back Muscle and Skin
Seiji Ohtori, Kazuhisa Takahashi, Tanemichi Chiba, Yuzuru Takahashi, Matsatsune Yamagata, Hiroaki Sameda, and Hideshige Moriya

2431 Impact Response of the Intervertebral Disc in a Finite-Element Model
Choon-Ki Lee, Young Eun Kim, Choon-Sung Lee, Young-Mi Hong, Jun-Mo Jung, and Vijay K. Goel

2440 Patient Characteristics and Patterns of Use for Lumbar Spine Radiographs: Results From the Veterans Health Study
Alfredo J. Selim, Graeme Fincke, Xinhua S. Ren, Richard A. Deyo, Austin Lee, Katherine Skinner, and Lewis Kazis

2445 Patient-Oriented Outcomes From Low Back Surgery: A Community-Based Study
Victoria M. Taylor, Richard A. Deyo, Marcia Ciol, Edward L. Farrar, Michael S. Lawrence, Neal H. Shonnard, K. Mark Leek, Brad McNeney, and Harold I. Goldberg

2453 Loss of Sagittal Plane Correction After Removal of Spinal Implants
Jeffrey E. Deckey, Charles Court, and David S. Bradford

2459 Point of View

2461 Deep Wound Infections After Neuromuscular Scoliosis Surgery: A Multicenter Study of Risk Factors and Treatment Outcomes
Paul D. Sponseller, Dawn M. LaPorte, Marc W. Hungerford, Kevin Eck, Keith H. Bridwell, and Lawrence G. Lenke

2467 Surface Electrode Somatosensory-Evoked Potentials in Spinal Surgery: Implications for Indications and Practice
Sotiris L. Papastefanou, Lesley M. Henderson, N. Jollyon Smith, Alistair Hamilton, and John K. Webb

2473 One-Year Prevalence of Low Back Pain in Two Swiss Regions: Estimates From the Population Participating in the 1992–1993 MONICA Project
Brigitte Santos-Eggimann, Vincent Wietlisbach, Martin Rickenbach, Fred Paccaud, and Félix Gutzwiller

2480 Socioeconomic Factors and Disability Retirement From Back Pain: A 1983–1993 Population-Based Prospective Study in Norway
Kåre B. Hagen, Hilde H. Holte, Kristian Tambs, and Tor Bjerkedal

2486 Point of View

2488 Differences in Repositioning Error Among Patients With Low Back Pain Compared With Control Subjects
Karen L. Newcomer, Edward R. Laskowski, Bing Yu, Jane C. Johnson, and Kai-Nan An

2494 Functional Restoration *verus* Outpatient Physical Training in Chronic Low Back Pain: A Randomized Comparative Study
Tom Bendix, Ane Bendix, Merete Labriola, Cornelia Hæstrup, and Niels Ebbehøj

2501 Nonsteroidal Anti-Inflammatory Drugs for Low Back Pain: A Systematic Review Within the Framework of the Cochrane Collaboration Back Review Group
Maurits W. van Tulder, Rob J. P. M. Scholten, Bart W. Koes, and Rick A. Deyo

2514 Primary Lumbosacral Stability After Open Posterior and Endoscopic Anterior Fusion With Interbody Implants: A Roentgen Stereophotogrammetric Analysis
Dietrich Pape, Frank Adam, Ekkehard Fritsch, Katja Müller, and Dieter Kohn

2519 Spinal Reflex Attenuation Associated With Spinal Manipulation
J. Donald Dishman and Ronald Bulbulian

2525 Point of View

2526 The Effect of Neuromuscular Blockade on Pedicle Screw Stimulation Thresholds
Robert E. Minahan, Lee H. Riley III, Tamara Lukaczyk, David B. Cohen, and John P. Kostuik

2529 Point of View

2531 Respiratory Failure in Postpneumonectomy Syndrome Complicated by Thoracic Lordoscoliosis: Treatment With Prosthetic Implants, Partial Vertebrectomies, and Spinal Fusion
Michael J. Codsi, Thomas G. Keens, James E. Stein, Katsuyuki Miyasaka, and David L. Skaggs

2537 Follow-Up Evaluation of Resected Lumbar Vertebral Chordoma Over 11 Years: A Case Report
Ken Y. Hsu, James F. Zucherman, Norval Mortensen, James O. Johnston, and John Gartland

2541 Contralateral Spondylolysis and Fracture of the Lumbar Pedicle in an Elite Female Gymnast: A Case Report
Yannick Guillodo, Estelle Botton, Alain Saraux, and Paul Le Goff

2544 Antimicrobial Prophylaxis in Spine Surgery: Basic Principles and Recent Advances
Justin B. Dimick, Pamela A. Lipsett, and John P. Kostuik

2549 Letters

2554 Meetings of Interest for Spine Physicians and Surgeons

October 15, 2000

2557 The Millennium Threshold: Is It the Economy, Stupid?

2566 Depression and Chronic Low Back Pain: Establishing Priorities in Treatment

2572 The Biopsychosocial Approach to Spine Care and Research

2573 Human Intervertebral Disc Cells Are Genetically Modifiable by Adenovirus-Mediated Gene Transfer
Seong-Hwan Moon, Lars G. Gilbertson, Kotaro Nishida, Mark Knaub, Thomas Muzzonigro, Paul D. Robbins, Christopher H. Evans, and James D. Kang

2580 Direct Current Electrical Stimulation Increases the Fusion Rate of Spinal Fusion Cages
Jeffrey M. Toth, Howard B. Seim III, Jeffrey D. Schwardt, Wendy B. Humphrey, Joel A. Wallskog, and A. Simon Turner

2587 Point of View

2588 The Effect of Nicotine on Gene Expression During Spine Fusion
Steven M. Theiss, Scott D. Boden, Gregory Hair, Louisa Titus, Michael A. Morone, and John Ugbo

2595 Real-Time *In Vivo* Loading in the Lumbar Spine. Part 1. Interbody Implant: Load Cell Design and Preliminary Results
Eric H. Ledet, Barton L. Sachs, John B. Brunski, Charles E. Gatto, and Peter S. Donzelli

2601 Twelve-Month Follow-Up of a Controlled Trial of Intradiscal Thermal Anuloplasty for Back Pain Due to Internal Disc Disruption
Michael Karasek and Nikolai Bogduk

2608 The Effect of Cigarette Smoking and Smoking Cessation on Spinal Fusion
Steven D. Glassman, Steven C. Anagnost, Andrew Parker, Darlene Burke John R. Johnson, and John R. Dimar

2616 A Prospective Study of Psychological Predictors of Lumbar Surgery Outcome
Paula M. Trief, William Grant, and Bruce Fredrickson

2622 Intradiscal Electrothermal Treatment for Chronic Discogenic Low Back Pain: A Prospective Outcome Study With Minimum 1-Year Follow-Up
Jeffrey A. Saal and Joel S. Saal

2628 Incidence of Intravascular Penetration in Transforaminal Lumbosacral Epidural Steroid Injections
Michael B. Furman, Erin M. O'Brien, and Timothy M. Zgleszewski

2633 Imaging Pitfalls of Interbody Spinal Implants
Gregory R. Cizek and L. M. Boyd

2637 Radiation Exposure to the Spine Surgeon During Fluoroscopically Assisted Pedicle Screw Insertion
Y. Raja Rampersaud, Kevin T. Foley, Alfred C. Shen, Scott Williams, and Milo Solomito

2646 A Prospective Randomized Multicenter Clinical Evaluation of an Anterior Cervical Fusion Cage
Robert J. Hacker, Joseph C. Cauthen, Thomas J. Gilbert, and Steven L. Griffith

2655 Point of View

2656 Four-Year Follow-Up Results of Lumbar Spine Arthrodesis Using the Bagby and Kuslich Lumbar Fusion Cage
Stephen D. Kuslich, Guy Danielson, John D. Dowdle, John Sherman, Bruce Fredrickson, Hansen Yuan, and Steven L. Griffith

2662 Point of View

2663 Incidental Durotomy in Spine Surgery
Frank P. Cammisa, Jr., Federico P. Girardi, Poorab K. Sangani, Hari K. Parvataneni, Stefan Cadag, and Harvinder S. Sandhu

2668 Modification of C1–C2 Transarticular Screw Fixation By Image-Guided Surgery
Andreas Weidner, Mario Wähler, Siang Tsien Chiu, and Christopher G. Ullrich

2674 Point of View

2675 Cervical Pedicle Screws: Comparative Accuracy of Two Insertion Techniques
Steven C. Ludwig, Joseph M. Kowalski, Charles C. Edwards II, and John G. Heller

2682 A Prospective Comparison of Surgical Approach for Anterior L4–L5 Fusion: Laparoscopic *Versus* Mini Anterior Lumbar Interbody Fusion
Thomas A. Zdeblick and Stephen M. David

2688 Behavioral Treatment for Chronic Low Back Pain: A Systematic Review Within the Framework of the Cochrane Back Review Group
Maurits W. van Tulder, Raymond Ostelo, Johan W. S. Vlaeyen, Steven J. Linton, Stephen J. Morley, and W. J. J. Assendelft

2700 Editorial on Residency and Fellowship Guidelines

2703 Resident and Fellowship Guidelines

2708 Transoral Decompression, Anterior Plate Fixation, and Posterior Wire Fusion for Irreducible Atlantoaxial Kyphosis in Rheumatoid Arthritis
Fridun Kerschbaumer, Frank Kandziora, Cornelius Klein, Thomas Mittlmeier, and Michael Starker

2716 Meetings of Interest for Spine Physicians and Surgeons

November 1, 2000

2719 The Visible Human Anatomy of the Lumbar Erector Spinae
Karl Daggfeldt, Qiang-Min Huang, and Alf Thorstensson

2726 Pedicle Morphology of the Immature Thoracolumbar Spine
Michael R. Zindrick, Gary W. Knight, Mark J. Sartori, Tony J. Carnevale, Avinash G. Patwardhan, and Mark A. Lorenz

2736 Observations on Fiber-Forming Collagens in the Anulus Fibrosus
G. Schollmeier, R. Lahr-Eigen, and K.-U. Lewandrowski

2742 Fibronectin and Its Fragments Increase With Degeneration in the Human Intervertebral Disc
Theodore R. Oegema, Jr, Sandra L. Johnson, Dean J. Aguiar, and James W. Ogilvie

2748 A Study of Stiffness Protocol as Exemplified by Testing of a Burst Fracture Model in Sagittal Plane
Manohar M. Panjabi, Yoshihiko Kato, Hans Hoffman, Jacek Cholewicki, and Martin Krag

2755 Anterior Vertebral Screw Strain With and Without Solid Interspace Support
David A. Spiegel, Bryan W. Cunningham, Itaru Oda, John P. Dormans, Paul C. McAfee, and Denis S. Drummond

2762 Subsidence Resulting From Simulated Postoperative Neck Movements: An *In Vitro* Investigation With a New Cervical Fusion Cage
H. J. Wilke, A. Kettler, C. Goetz, and L. Claes

2771 Increase in Spinal Canal Area After Inverse Laminoplasty: An Anatomical Study
Kemal Yücesoy and Neil R. Crawford

2777 Retro-Dental Reactive Lesions Related to Development of Myelopathy in Patients With Atlantoaxial Instability Secondary to Os Odontoideum
Han Chang, Jong-Beom Park, Ki-Won Kim, and Woo-Sung Choi

2784 Exercise Therapy for Low Back Pain: A Systematic Review Within the Framework of the Cochrane Collaboration Back Review Group
Maurits van Tulder, Antti Malmivaara, Rosmin Esmail, and Bart Koes

2797 Osseous Anatomy of the Lumbosacral Spine in Marfan Syndrome
Paul D. Sponseller, Nicholas U. Ahn, Uri M. Ahn, Leelakrishna Nallamshetty, Peter S. Rose, Brian S. Kuszyk, and Elliot K. Fishman

2803 Inflammatory Cells, Motor Weakness, and Straight Leg Raising in Transligamentous Disc Herniations
Mats Grönblad, Johanna Virri, Seppo Seitsalo, Aklilu Habtemariam, and Erkki Karaharju

2808 Congruent Spinopelvic Alignment on Standing Lateral Radiographs of Adult Volunteers
Roger P. Jackson and Chris Hales

2816 Assessing the Needs of Patients in Pain: A Matter of Opinion?
Irene B. Jensen, Lennart Bodin, Therese Ljungqvist, K. Gunnar Bergström, and Åke Nygren

2824 Point of View

2825 Can Chronic Disability Be Prevented? A Randomized Trial of a Cognitive-Behavior Intervention and Two Forms of Information for Patients With Spinal Pain
Steven J. Linton and Therese Andersson

2832 Posterior Spinal Shortening for Paraplegia After Vertebral Collapse Caused by Osteoporosis
Kazuo Saita, Yuichi Hoshino, Ichiro Kikkawa, and Hitoshi Nakamura

2836 Horner's Syndrome After Posterior Spinal Fusion in a Child: A Case Report
Kelly L. Mueller, Randall T. Loder, Eric R. Eggenberger, and Frances A. Farley

2838 History of Spinal Surgery
Stefan M. Knoeller and Christian Seifried

2844 Letters

2849 Meetings of Interest for Spine Physicians and Surgeons

November 15, 2000

2853 Leadership and Mentoring: Its Importance to Our Future
Harry N. Herkowitz

2856 A Mountain Climber's Life of Challenge
Jim Wickwire

2860 Tortuous Course of the Vertebral Artery and Anterior Cervical Decompression: A Cadaveric and Clinical Case Study
Lukasz J. Curylo, Harold C. Mason, Henry H. Bohlman, and Jung U. Yoo

2865 Cervical Spine Pedicle Screws: A Biomechanical Comparison of Two Insertion Techniques
Joseph M. Kowalski, Steven C. Ludwig, William C. Hutton, and John G. Heller

2868 Pathomechanisms of Failures of the Odontoid
Christian M. Puttlitz, Vijay K. Goel, Charles R. Clark, and Vincent C. Traynelis

2877 Biomechanical Comparison of Five Different Atlantoaxial Posterior Fixation Techniques
Thomas Henriques, Bryan W. Cunningham, Claes Olerud, Norimichi Shimamoto, Guy A. Lee, Sune Larsson, and Paul A. McAfee

2884 Evaluation of the Cervical Spine in the Polytrauma Patient
Mitchel B. Harris, Steven C. Kronlage, Phyllis A. Carboni, Kearny Q. Robert, Brett Menmuir, James E. Ricciardi, and Norman B. Chutkan

2892 Point of View

2893 Impact of Longitudinal Distance of the Cervical Spine on the Results of Expansive Open-Door Laminoplasty
Kazuhiro Chiba, Yoshiaki Toyama, Masahiko Watanabe, Hirofumi Maruiwa, Morio Matsumoto, and Kiyoshi Hirabayashi

2899 Surgical Treatment of Cervical Destructive Spondyloarthropathy (DSA)
Kuniyoshi Abumi, Manabu Ito, and Kiyoshi Kaneda

2906 On the Incidence, Cause, and Prevention of Recurrent Laryngeal Nerve Palsies During Anterior Cervical Spine Surgery
Ronald I. Apfelbaum, Mark D. Kriskovich, and Jeffrey R. Haller

2913 Translaminar Screws in the Atlas
Timothy Floyd and Dieter Grob

2916 Multifidus Spasms Elicited by Prolonged Lumbar Flexion
Mathew Williams, Moshe Solomonow, Bing He Zhou, Richard V. Baratta, and Mitchel Harris

2925 A Biomechanical, Radiologic, and Clinical Comparison of Outcome After Multilevel Cervical Laminectomy or Laminoplasty in the Rabbit
Michael J. Fields, Kazuo Hoshijima, Alexander H. P. Fenge, William J. Richardson, and Barry S. Myers

2932 The Cochrane Review of Bed Rest for Acute Low Back Pain and Sciatica
Kåre B. Hagen, Gunvor Hildec, Gro Jamtvedt, and Michael F. Winnem

2940 The Oswestry Disability Index
Jeremy C. T. Fairbank and Paul B. Pynsent

2953 Point of View

2954 Training Primary Care Physicians to Give Limited Manual Therapy for Low Back Pain: Patient Outcomes
Peter Curtis, Timothy S. Carey, Paul Evans, Michael P. Rowane, Joanne Mills Garrett, and Anne Jackman

2960 Point of View

2962 Deep Venous Thrombosis After Posterior Spinal Surgery
Takenori Oda, Takeshi Fuji, Yasuji Kato, Satoru Fujita, and Naoko Kanemitsu

2968 Letters

2970 Meetings of Interest for Spine Physicians and Surgeons

December 1, 2000

2973 Power-Down—The Chocolate Chip *versus* the Microchip: A Maieutic Attempt Towards Change

2000 Volvo Award Winner in Basic Science Studies

2975 Exogenous Tumor Necrosis Factor-Alpha Mimics Nucleus Pulposus-Induced Neuropathology: Molecular, Histologic, and Behavioral Comparisons in Rats
Tamaki Igarashi, Shinichi Kikuchi, Veronica Shubayev, and Robert R. Myers

2000 Volvo Award Winner in Biomechanical Studies

2981 Monitoring *In Vivo* Implant Loads With a Telemeterized Internal Spinal Fixation Device
Antonius Rohlmann, Friedmar Graichen, Ulrich Weber, and Georg Bergmann

2000 Volvo Award Winner in Clinical Studies

2987 Lumbar High-Intensity Zone and Discography in Subjects Without Low Back Problems
Eugene J. Carragee, Steve J. Paragioudakis, and Sanjay Khurana

2993 Does Long-Term Compressive Loading on the Intervertebral Disc Cause Degeneration?
William C. Hutton, Timothy M. Ganey, William A. Elmer, Eva Kozlowska, John L. Ugbo, Eun-Sig Doh, and Thomas E. Whitesides, Jr.

3005 Matrix Metalloproteinases and Aggrecanase: Their Role in Disorders of the Human Intervertebral Disc
Sally Roberts, Bruce Caterson, Janis Menage, E. Helena Evans, David C. Jaffray, and Stephen M. Eisenstein

3014 Spinal Biomechanics and Aging Are Major Determinants of the Proteoglycan Metabolism of Intervertebral Disc Cells
Thomas K. F. Taylor, James Melrose, Daniel Burkhardt, Peter Ghosh, Lutz E. Claes, Annette Kettler, and Hans-Joachim Wilke

3021 Vertebral Blood Flow and Bone Mineral Density During Long-Term Corticosteroid Treatment: An Experimental Study in Immature Pigs
Wolf Drescher, Haisheng Li, Dorte Qvesel, Søren D. Jensen, Christian Flø, Ebbe S. Hansen, and Cody Bünger

3026 Disc Lesions and the Mechanics of the Intervertebral Joint Complex
Rosemary E. Thompson, Mark J. Pearcy, Kristian J.W. Downing, Beverley A. Manthey, Ian H. Parkinson, and Nicola L. Fazzalari

3036 The Effect of Disc Degeneration and Facet Joint Osteoarthritis on the Segmental Flexibility of the Lumbar Spine
Atsushi Fujiwara, Tae-Hong Lim, Howard S. An, Nobuhiro Tanaka, Chang-Hoon Jeon, Gunnar B.J. Andersson, and Victor M. Haughton

3045 The Influence of Psychosocial Stress, Gender, and Personality on Mechanical Loading of the Lumbar Spine
William S. Marras, Kermit G. Davis, Catherine A. Heaney, Anthony B. Maronitis, and W. Gary Allread

3055 The Effects of Common Medical Interventions on Pain, Back Function, and Work Resumption in Patients With Chronic Low Back Pain: A Prospective 2-Year Cohort Study in Six Countries
Tommy H. Hansson and Elisabeth K. Hansson

3065 Provocative Discography in Patients After Limited Lumbar Discectomy: A Controlled, Randomized Study of Pain Response in Symptomatic and Asymptomatic Subjects
Eugene J. Carragee, Yung Chen, Cary M. Tanner, Thao Truong, Eunice Lau, and Jorge L. Brito

3072 Causes and Mechanisms of Common Coccydynia: Role of Body Mass Index and Coccygeal Trauma
Jean-Yves Maigne, Levon Doursounian, and Gilles Chatellier

3080 Predictors of Musculoskeletal Pain in Men: A Twenty-Year Follow-Up From Examination at Enlistment
Anna-Lisa Hellsing and Ing-Liss Bryngelsson

3086 Erratum

3087 A 3-year prospective cohort study was carried out to investigate work-related physical risk factors for low back pain. A moderate increased risk of low back pain was observed for workers who worked with the trunk in a minimum of 60 degrees of flexion for more than 5% of the working time, for workers who worked with the trunk in a minimum of 30 degrees of rotation for more than 10% of the working time, and for workers who lifted a load of at least 25 kg more than 15 times per working day.
Wilhelmina E. Hoogendoorn, Paulien M. Bongers, Henrica C. W. de Vet, Marjolein Douwes, Bart W. Koes, Mathilde C. Miedema, Geertje A.M. Ariëns, and Lex M. Bouter

3093 Meetings of Interest for Spine Physicians and Surgeons

December 15, 2000

3097 Introduction
Claire Bombardier

3100 Outcome Assessments in the Evaluation of Treatment of Spinal Disorders: Summary and General Recommendations
Claire Bombardier

3104 Clinical Research: Issues in Data Collection
James N. Weinstein and Richard A. Deyo

3110 Measuring Functional Outcomes in Persons With Back Pain: A Review of Back-Specific Questionnaires
Jacek A. Kopec

3115 The Roland–Morris Disability Questionnaire and the Oswestry Disability Questionnaire
Martin Roland and Jeremy Fairbank

3125 A Review of Generic Health Status Measures in Patients With Low Back Pain
Jon Lurie

3130 SF-36 Health Survey Update
John E. Ware, Jr.

3140 Assessing Global Pain Severity by Self-Report in Clinical and Health Services Research
Michael Von Korff, Mark P. Jensen, and Paul Karoly

3152 A Review of Health-Related Work Outcome Measures and Their Uses, and Recommended Measures
Benjamin C. Amick III, Debra Lerner, William H. Rogers, Ted Rooney, and Jeffrey N. Katz

3161 Preference-Based Health Outcome Measures in Low Back Pain
Anna N. A. Tosteson

3167 The Characteristics of Patient Satisfaction Measures
Pamela L. Hudak and James G. Wright

3178 Lessons Learned Searching for an HRQOL Instrument to Assess the Results of Treatment in Patients With Lumbar Disorders
Gustavo Zanoli, Björn Strömqvist, Roberto Padua, and Emilio Romanini

3186 Guidelines for the Process of Cross-Cultural Adaptation of Self-Report Measures
Dorcas E. Beaton, Claire Bombardier, Francis Guillemin, and Marcos Bosi Ferraz

3192 Understanding the Relevance of Measured Change Through Studies of Responsiveness
Dorcas E. Beaton

3200 Glossary
Claire Bombadier

3203 Meetings of Interest for Spine Care Health Professionals

3206 Contents Index

3231 Author Index

3237 Subject Index